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MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

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A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY.

EDITED BY

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WITH THE CO-OPERATION OF PROFESSOR E. B. TITCHENER, AMERICAN EDITORIAL REPRESENTATIVE, AND OF PROFESSOR WARD, PROFESSOR PRINGLE-PATTISON, DAVID MORRISON, M.A., AND OTHER MEMBERS OF AN ADVISORY COMMITTEE.

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MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY

I.—ENJOYMENT AND AWARENESS.

By C. Lloyd Morgan.

In an article in *Scientia* (vol. xviii., 1915) on "Mind and Body" I contended that psychical process always implies correlated physiological process, as this in turn implies physical process. To avoid cumbrous repetition of such phrases, I termed physical process *a*-process, physiological process with its physical implicate *ab*-process, and psychical process, with its physiological and physical implicates, *abc*-process. I urged that a criterion of the presence of *abc*-process, in any organism, is not only awareness but prospective awareness, or what I termed pre-awareness. And, giving rein to speculation, I ventured to suggest that a relation of awareness might be regarded as ubiquitous at all stages of natural process.

Having been told that the suggested ubiquity of awareness was left quite vague, and that what I meant by awareness is very indefinite, I submit the following notes which may serve to throw some further light on what I had in mind:—

1. Let x be an inorganic system abstractedly regarded in isolation, and let it be a theatre of physical change (*a*-process). Assume as a basis for speculative discussion that what may thus be known by us as physical process is also a primitive mode of enjoyment.[1]

2. Let y be a second system analogous to x, compresent with it in space, and in effective physical relatedness to it.

[1] I here borrow Prof. Alexander's convenient term, parting company with him, I fear, in the treatment which follows.

Then in virtue of this physical relatedness the a-process in x (or in y) is changed in presence of y (or of x).

3. The a-process in each being thus changed, the enjoyment in each is, *ex hypothesi*, also changed; for it is part of our initial assumption that with every difference in a-process there is a correlated difference in enjoyment. The change of enjoyment in x or in y is thus also correlated with physical changes in y or in x. This relation of enjoyment to a physical object compresent in space is a mode of what we will call awareness. The terms in relation are x and y. We may say that x in which a change of enjoyment occurs is aware of y; and similarly y of x (*cf.* Note 26).

4. On this view the enjoyment is primarily immanent in any given system; but awareness is a transeunt influence from some other system, external to it, but compresent with it in space. Hence awareness of y implies enjoyment in x.

5. But though compresent in space the changes in y are not necessarily coincident in time with changes in x. The physical process in y may precede the change of enjoyment in x; but the change of enjoyment in x cannot precede the physical process in y. As I read the problem of time, there can be no immediate awareness of an event which has not yet occurred (*cf.* Notes 32 ff. on pre-awareness).

6. If, now, x be a system composed of molecules each a theatre of a-process, then there is enjoyment within each molecule regarded in isolation; and as a constituent of the systemic whole, each is aware of the others as compresent, in so far as its a-process and its enjoyment are influenced by these others.

7. If, on the other hand, x be a constituent part of a much more complexly integrated system, then the integrated totality of enjoyment in that system will be correlative with the systemic totality of a-process in the complex whole; and these totalities may be reached not only by additive summation or quantitative variation, giving *resultants*, but by constitutive evolution giving *emergents* (see G. H. Lewes, *Problems of Life and Mind*, Prob. v., chap. iii.; *cf.* J. S. Mill, *System of Logic*, Bk. III., chap. vi., "heteropathic laws").

8. Thus the type of molecular process in a vapour differs from that in a liquid, and this again from that in a solid. These differences are not only quantitative; they depend also on constitutive relations; so that there are distinctive properties of vapour, liquid, and solid, explicable in terms of molecular theory. So too the properties of water differ from those of its elementary factors, not yet or no longer thus combined. Here, as in the case of all chemical com-

pounds, the difference in emergent properties is the index of a difference in constitutive relations within the inorganic system.

9. If then, in accordance with our initial assumption, any given physical process, as we know it, is also a mode of enjoyment, it may be urged that there are qualitatively different modes of enjoyment in vapour, in liquid, and in solid ; and that there is a specific water-enjoyment, as contrasted with an oxygen- or a hydrogen-enjoyment.

10. And if the physical process in one system is modified by transeunt causation proceeding from other compresent systems, the enjoyment in the one is also modified through its relation of awareness to the others. This modification may be merely additive, with quantitative change in extent or intensity; or it may also be constitutive with emergent qualities of enjoyment.

11. The emergence of new properties in that of which there is awareness, *i.e.* in physical systems compresent in space ; and the emergence of new qualities in that which is aware of them, *i.e.* in modes of enjoyment within a given system, provide for progressive evolution of what we will call *qualia*, as a general term for emergent or constitutive characters.

12. The point of emphasis here is that there are emergent characters in enjoyment, and that the evolution of *qualia* is not restricted to the objective term in the awareness-relation. This seems to follow from our initial assumption ; for since in the evolution of physical systems there seem to be emergent *qualia*, and since *ex hypothesi* there is in each system its own enjoyment, it appears to be legitimate to regard this enjoyment as susceptible of constitutive evolution.

13. The question here arises whether we should regard the relation of awareness as itself susceptible of differentiation. This does not seem to be necessary. The modes of effective physical relatedness of one inorganic system to another may have assignable differences ; physical systems may be in different "fields of force," so-called. But we may provisionally assume that, while the objects of awareness have their distinctive *qualia*, and while the enjoyment may be specifically qualified, the transeunt awareness is one and the same in kind irrespective of the qualification of its terms.

14. Pass now to the case in which the complex system is an organism. Here both the process which the biologist seeks to interpret and the enjoyment, the presence of which we assume, have the *qualia* which are characteristic of the living. So distinctive are these *qualia*, in their objective

aspects, that there is, as I believe, justification for saying that what I have called *ab*-process supervenes upon *a*-process. By an *ab*-process I mean one that is not only physical but has also physiological *qualia*. And I suggest that, just as *ab*-process supervenes upon *a*-process, so does a new mode of enjoyment therein, with its emergent *qualia*, supervene upon its inorganic predecessors in the course of constitutive evolution.

15. When the x and y with which we started are approximately similar terms the enjoyment in x as modified by awareness of y, is approximately similar to the enjoyment in y as modified by awareness of x. But in the course of evolution one term, m', may be a centre of differentiation and integration much more complex than those which obtain in other terms, n', q', r', etc. The enjoyment in m' may be much more complex and possess specific *qualia*, while the enjoyments in n', q', r' may have undergone far less development. It does not follow that because m', with its highly evolved enjoyment, has that enjoyment specifically modified by awareness of n', q', r', any of these, with its lower modes of enjoyment, has that enjoyment modified in like manner by awareness of m'.

16. In other words the enjoyment in an organism, say a plant, may be changed by awareness of inorganic bodies compresent in space ; but the enjoyment in these bodies may be changed in far less degree, and so to speak on a much lower plane, by awareness of the organism which is compresent with them.

17. Can we say in what respect, irrespective of emergent *qualia*, *ab*-process, as specific to the organism, differs from *a*-process ? Apart from that on which scientific vitalism lays stress, namely the close-knit integration of differentiated sub-processes into one nicely-balanced process which is the life of the organism as a whole, we may here also lay stress upon this ; that it differs in the marked emphasis on " prospective value ". For the organism as such, however, there is only immediate awareness of that, external to the system, which directly affects the enjoyment in that system by way of transeunt awareness. There is as yet no representative pre-awareness (see Notes 32 ff.).

18. None the less such immediate awareness may have prospective value. Since *ab*-process in the organism as a whole is characterised by a peculiar type of cyclic routine, certain modes of awareness at stage e' of that routine may have prospective value in so modifying the course of routine as to meet its requirements at a later stage g' or k'. The

transeunt process, with awareness, at *e'*, may prepare the organism and its enjoyment for what will happen at *g'* or *k'*, of which it is at *e'* wholly unaware, since, as I hold, there is no transeunt influence from that which is not yet in being.

19. The fertilisation of the ovum has prospective value in terms of the subsequent development of the embryo. In that embryo the optic vesicle, invaginated by ectoderm, has prospective value in that therefrom the eye will be developed. And this embryonic eye has prospective value for the direct awareness in vision which will follow in due course. But there is no prospective awareness in the optic vesicle of anything of the nature of a future object of vision. Still the enjoyment is being progressively developed so as to render it susceptible of such later relation of awareness.

20. Of course within the organism each several part and organ has, *ex hypothesi*, awareness of the functioning of other parts and organs; and more immediately and directly of the composition of the blood with its biochemical constitution as modified by the presence of organic secretions or hormones, and so forth—such awareness carrying no implication of "knowledge about". And this intra-organic awareness is intimately connected with the unity of the total life-process as it is interpreted by the scientific school of vitalists, and as it is organically enjoyed.

21. When, in one of the higher animals, a central nervous system is developed, we seem justified in regarding that system as an *imperium in imperio*; we seem justified in regarding it as a theatre of privileged enjoyment, and speaking of it as playing the part of *m'* (Note 15) to other organs as *n'*, *q'*, *r'*, etc. At a yet later stage of development the cortex is differentiated, and we have an *imperium in imperio in imperio*. The cortex is the seat of a yet more highly privileged enjoyment with emergent *qualia*. It is aware of processes in the lower nerve-centres and, through their intervention, of processes external to them *via* extero-, entero-, and proprioceptors.

22. This more highly privileged enjoyment is probably the dominant factor in that of the infant in the first few months, and, presumably, in that of a great number of animals. With the advent of conceptual thinking, with its underlying *ab*-process, the totality of enjoyment is raised to a yet higher level, is rendered more unified and systematic, and gains its highest known *qualia*.

23. Provisionally we may say that such privileged cortical enjoyment has the *qualia* of consciousness; and that changes in this enjoyment through awareness are of the same kind

as those of which we have experience. As an example of a distinctive *quale* of conscious enjoyment, as modified by awareness, we may take our awareness of colour in objects of vision; as an example of yet higher *qualia*, we may take any one of the so-called tertiary qualities, which are correlated with certain emergent characters of human enjoyment.

24. Follow up a little further our awareness of colour. Let a spectrum on a screen be the compresent physical system. As interpreted by physics there proceeds from this spectrum an ordered series of electro-magnetic undulations differing in wave-length. The variation in this respect from one end of the spectrum to the other, and beyond its visible limits, appears to be quantitative and quantitative only. There seems to be no hint of any difference of emergent properties from the physical standpoint.

25. But let that which is related to the spectrum by way of awareness be an organism in which a retino-cerebral system has been developed, then the total enjoyment in that organism is so modified by the compresent spectrum as to have emergent qualitative differences in colour-enjoyment and not merely quantitative differences. As at present advised therefore I am led to conclude that colours are qualities of enjoyment emergent within the organism and not emergent properties of the compresent object to which that enjoyment is related by awareness.

26. The difficulty here arises that what I speak of as the quality of enjoyment is referred to the compresent object. This difficulty is really that involved in the whole problem of reference. On this head it must suffice to suggest that while the awareness with which I have dealt is a transeunt influence proceeding inwards from the object of awareness to enjoyment, reference retraces the course outwards from enjoyment to object; and that all that is gained in enjoyment *via* awareness throughout the whole of its inward course, is projected outwards in reference to the object. And since both our action and our language conform to this reference, we do not often pause to consider whence this reference comes—namely from enjoyment within the organism.

27. It may, however, be urged that awareness always implies reference. I am not concerned to deny the implication. It is not improbable that even the most primitive cases of awareness (as in Note 3) imply some primæval form of reference to that of which there is awareness. In this sense some germinal form of reference may be complementary to any germinal phase of awareness. And al-

though I have dealt with awareness as a transeunt influence from without by which enjoyment is modified, I freely acknowledge that in psychological development the implied reference receives the greater emphasis—so much so that awareness comes to mean reference, and the distinction I draw may appear somewhat strained.

28. What I am chiefly concerned to urge is that, in any case, the object of reference is characterised by the *qualia* of enjoyment evoked by awareness of a compresent system. These *qualia* are, so to speak, reflected from enjoyment on to the correlative object. By object I here mean that from which awareness comes, but solely in respect of this immediate and direct awareness. That is to say I abstract from all that is mediately or indirectly suggested. When there is direct reference of colour to that from which awareness proceeds in sensory presentation, there are, I suggest, projected *qualia* of enjoyment which may be correlated with physical vibrations and so forth.

29. In some cases, however, the projected *qualia* of enjoyment, though they are referred to the object of vision, have no correspondent correlates in the compresent system, interpreted as a physical object. If, on a purple disc, alternate sectors of black and white be so arranged as to give, on rotation of the disc, a ring which, from the physical point of view, has no preponderance of those vibrations which are normally correlated with colour, that ring appears to be green. This tinting is, as we say, retino-cerebral in origin. None the less it is referred to the ring on the disc, and we say that it is this part of the disc itself, as an object of vision, which is tinted. Such contrast effects in vision seem to arise in retino-cerebral enjoyment; but they are referred to the object with which we are compresent in space.

30. If colour as a secondary quality be thus regarded as a projected *quale* of perceptual enjoyment, so must the tertiary qualities—æsthetic and ethical values and the like—be regarded as projected *qualia* of our conceptual enjoyment. At their highest they emanate from that crowning phase in the development of human enjoyment to which the term spiritual is commonly applied (see Note 49).

31. Thus there is an ascending hierarchy in the *qualia* of enjoyment. At the lowest or inorganic level the *qualia* of enjoyment, as referred to that from which awareness proceeds, may differ but little from the physical properties of compresent objects. At the highest or spiritual level they transform the world on which they are projected and determine our conduct therein. But only, as I conceive, through

the systematic linkage of the whole ascending series of enjoyments, from bottom to top, can all the modes of our supreme and highly integrated enjoyment be interpreted. Our enjoyment, with all its *qualia*, is the net result of the constitutive totality of enjoyments, including those at all levels within the conscious organism.

32. With the emergence of the generic *qualia* of conscious enjoyment, developed only in organisms which possess certain privileged nerve-centres, we have the enjoyment of *abc*-process. Can we say in what respect this *abc*-process, even in the earlier phases of its development, differs from *ab*-process, otherwise than in virtue of the emergent *qualia* of its enjoyment? Tentatively we may say that prospective value has been supplemented by prospective awareness or what I have termed pre-awareness.

33. Prospective awareness or pre-awareness is representative not presentative of external occurrences. When x is aware of y, and y of x (Note 2), the awareness is presentative in the sense of being direct and immediate. Actual compresence is essential. So too the unconscious organism —*e.g.* presumably the plant—is aware only of that with which it is actually compresent, in the sense of being subject to the direct influence of that of which it is then and there aware.

34. But the conscious organism is not only aware of external occurrences with which it is thus actually compresent, it has also a foretaste of occurrences with which—as interpreted by conceptual thought—it will be compresent. Stress is here laid on the "will be" rather than the "has been" on genetic grounds. Prospective awareness in the conscious organism is the supplement of prospective value in the as yet unconscious organism. But in neither case is explicit reference to the future necessarily implied by the phrase. Explicit reference to the past or the future,—the past in origin, the future in application,—comes only with conceptual thought (Note 43).

35. Both prospective value and prospective awareness, however, each after its kind, are founded on (1) repetition of routine, and (2) retention, in later phases of that routine, of changes wrought in earlier phases. Where prospective value alone obtains there is reaction only to presentation of the compresent; there is no provision for representation of the not yet compresent.

36. What then is the nature of this provision, where *abc*-process has been established? Again the answer must be tentative. The cortex may be regarded as a system of

centres α, β, γ, etc., each connected with others *via* neurones, but partially isolated from others by synaptic resistance. Let the *ab*-process and enjoyment in one of these, say δ, be changed through awareness, *via* extero-ceptors, of an occurrence external to the organism. Of that change other centres in the cortex are physically aware *a*-fashion; but physiological awareness, *ab*-fashion, seems mainly to be through neuronic connexion.

37. Let two such centres, say δ and σ, have their process and enjoyment modified in succession, at not too great an interval, through the awareness of routine occurrences in the external world, successively compresent with them. Then the synaptic resistance in the neuronic connexion between δ and σ is overcome, and is thenceforward lessened through retention—synaptic resistance towards β, λ, τ, etc., remaining undiminished.

38. Hence, if the routine be subsequently repeated, on the recurrence of similar process in δ, through awareness of the correspondent occurrence in the external routine, σ-process is revived owing to the lessened synaptic resistance in the neurones connecting δ and σ. This revival, as representative pre-awareness, precedes the presentative awareness through sense-receptors. Thus on lifting a cup of coffee to our lips we have pre-awareness of the coming taste before the taste-receptors are stimulated.

39. A routine in the nerve-centres is called forth by the routine in the external world. Traces left by former routine form physiological dispositions for later routine. And, in revival, the representative sequence of pre-awareness outstrips the sensory sequence with its direct presentative awareness of external routine. This outstripping is essential to render pre-awareness of any service. In pre-awareness prospective value is raised to a more effective level.

40. It must be remembered that the sensory centres of the cortex are also connected, *ab*-fashion, by neuronic enchainment, with cortical and sub-cortical motor-centres, and through them serve to control behaviour. Essential as is this control in he adjustment of routine in an active organism to the inter-woven routines of its environment, one essential feature alone demands emphasis here.

41. It is a necessary condition of all conscious control that it should emanate from centres in which there is representative pre-awareness. All profiting by experience is profiting by prospective awareness. All conscious control is preventive in the older sense of the word.

42. Presentative awareness of what is then and there

compresent in space with the organism will not suffice. If it is already compresent in such wise as to call forth direct sensory awareness, there it is, and it cannot be escaped or avoided; and if it is not yet thus compresent it can call forth no direct awareness. No doubt there is a sense in which it may be said that to be of any avail, prospective meaning is compresent with the sensory presentation which it qualifies. But that is not the sense in which I here use the word. What I urge is that prospective awareness, as such, *has reference to* that which is not yet compresent in such wise as to afford direct awareness; and that conscious control must always involve some forestalling of an event which is coming but has not yet come.

43. Now although it is impossible for us to *interpret* either pre-awareness or prospective value save in reference to coming events, it is probable that, when prospective awareness first dawns on the scene, there is therein no explicit reference to the future. Pre-awareness, as a form of meaning, just conspires with direct awareness to modify in a distinctive manner the totality of enjoyment. No doubt this distinctive manner is that from which explicit reference to the future is in due course developed. But in perceptual life the emphasis is on the modification of enjoyment here and now. At most there is, born of routine, a vague "fringe of comingness" attaching to the present enjoyment, such as we have with regard to the further position of hand and arm in the middle of a stroke in billiards, before the impact of the cue on the ball.

44. But if, in accordance with what was suggested in Note 38, δ, as a factor in the totality of *ab*-process in the cortex, is the main determinant of a change in σ, partially reinstating therein a change like to that which had previously been determined *via* extero-ceptors, the reference from σ, as a centre of enjoyment, is normally to the object which directly stimulates δ, and which will, perhaps, a little later directly stimulate σ.

45. The whole problem of reference needs further and fuller discussion than, I think, it has yet received. It seems that where there is a chain of transeunt awareness proceeding inwards, say from candle-flame to retinal receptors, from them to lower nerve-centres, and from them again to our cortical centre δ, the reference from enjoyment outwards skips all intermediate links of the chain and goes straight out to the candle-flame, the light of which we see.

46. If then subsequently the functioning of δ is determined, not immediately by stimulation of the retina but mediately

by intra-cortical process, the reference of the enjoyment in δ is still what it was in the case of the initially immediate awareness—namely to the object. It must be remembered, however, that we have been dealing only with factors in the totality of enjoyment, which as a totality is a complexly integrated whole with additive and constitutive characters. We must remember, too, that what we come to interpret as its reference is a reference from this unified enjoyment as a whole to some in like manner unified psychological object set in a context of reference. But I cannot here follow up this topic. It is time to bring these Notes to a close.

47. I have, in that which precedes, endeavoured to restrict my speculations with regard to the evolution of enjoyment through awareness, to intra-mundane processes within the order of nature. I have dealt with emergent *qualia* as I conceive them to come into being, basing acceptance of their existence on what I regard as empirical evidence so far as it can be obtained.

48. There is, however, nothing in what I have said which precludes the belief in an extra-mundane Source of existent process and of the successively emergent *qualia*. Metaphysical supernaturalism, if it be accepted, is supplementary to, and nowise antagonistic to, naturalism.

49. If a supernatural Source be accepted it will be held to comprise in its being—*eminenter*, as the Schoolmen would say—all known *qualia* and such others as may hereafter be manifested through its operation. And the highest *qualia*—those of the tertiary order including spiritual values—may be metaphysically regarded as those manifestations within our enjoyment through which we are in closest attainable touch, in our present life, with Spiritual Agency.

50. It is clear, however, that whereas naturalistic interpretation must proceed upwards, as we have done, on the principle that the higher implies, as logically prior, the lower, the course of metaphysical explanation will run in the opposite direction. All manifestations, even the lowest, imply a Spiritual Source in the eminent fulness of its being.

II.—ROUSSEAU'S DOCTRINE OF THE RIGHT TO BELIEVE.

By Norman Wilde.

To admit the truth of Mme. de Stael's judgment on Rousseau that "il n'ait rien inventé mais tout enflammé," is not to admit its whole truth. Like all great preachers he was conservative in doctrine, his power lying in his appeal to the instinctive beliefs to which he called men back, rather than in any novelty of idea. He was not an innovator but a reformer. The ideas with which he inflamed the hearts of his generation were the primitive beliefs of the simplest domestic pieties, pieties the value of which had been ignored by the cultured of his day, but the practice of which had been part of the common life of the race.

But though a contemner of reason and a foe to the *philosophes*, Rousseau has yet his place in the history of thought. If his beliefs were old, the ground upon which he justified them was relatively new. In his passionate defence of these beliefs which to him were life, we have one more phase of the perennial protest raised by faith against the limits of thought. Forbidden by the philosophy of his day to cherish even the meagre hopes implied in the most attenuated of Christian theologies, and unable to find in even the most religious of systems sufficient upon which to build his faith, he abandoned reason and found in feeling the organ of religious truth. In this emphasis upon feeling and the right to believe he seems to anticipate the tendencies of the present, but so unsystematic is his teaching that, in spite of the studies his bi-centenary has evoked, his doctrine of belief seems not yet clearly defined. To understand that doctrine it is necessary to take into account both the content of his beliefs and their relation to his temperament.

The dominant factor in Rousseau's thought is his optimism, not the pedantic optimism of popular theology extracted from Leibnitz and ridiculed by Voltaire, but an involuntary, temperamental optimism, the expression of his incurably romantic temper. Sensitive and dreamy from a child, he had developed the habit of ecstatic enjoyment

of solitary nature. The world as felt in these deliciously delirious moments was for him the real world. The miseries of life, keenly as he felt them in his own experience, seemed only to drive him more surely into this world of his dreams, and to fix in him more firmly his belief in its reality. Against such revelations of the beauty and goodness of life, the mere facts of evil were of little avail. The Lisbon earthquake, so shattering to the complacency of Voltaire, left Rousseau unshaken. If men had been living as nature intended them to live, they would not have had such lofty houses to be shaken down about their heads, or such cities to be destroyed, he suggests. But it is not on facts that his optimism rests. It is not a matter of hedonic induction by which the various happinesses of the world are pieced together into the vision of a perfect whole. On the contrary, it is the vision of the perfect world that makes radiant its parts. "Au lieu de tout est bien, il vaudrait peut-être mieux dire le tout est bien, ou tout est bien pour le tout."[1] In other words, belief in God is the condition, not the result, of finding life good. Rousseau makes some attempt to argue the problem of evil in historic ways, but such arguments have little interest for him. His own emotional certainty is sufficient.

This optimism becomes explicit in his belief in God. Indeed, it is hardly to be distinguished from it. This gloriously beautiful universe with which he is in love can only be thought by him as the expression of a personal will and the embodiment of a moral purpose. "This being who wills and can perform his will, this being active through his own power, this being whoever he may be, who moves the universe and orders all things, is what I call God. To this name I add the ideas of intelligence, power, will which I have brought together, and that of kindness which is their necessary consequence, but for all this I know no more of the being to which I ascribe them. . . . I see God everywhere in his works; I feel Him within myself; I behold Him all around me; but if I try to ponder Him Himself, if I try to find out where He is, what He is, what is His substance, He escapes me and my troubled spirit finds nothing."[2] This indefiniteness of conception allows Rousseau to combine a double set of attributes in his idea of God, the naturalistic and the moral. By heredity and training he is a Genevan Protestant and a worshipper of the just God of Calvin, whose existence is the corner-stone of the moral order. This God is a transcendent God, an essentially personal God, whose

[1] *Letter à Voltaire*, 18th August, 1756. [2] *Emile*, Book IV.

will is the standard by which we distinguish the evil from the good. It is this God whom Rousseau preaches in the *Emile* and confesses in his *Letter to the Archbishop of Paris* and *Letters from the Mountain.* It is by virtue of this faith that he can still profess himself a Christian, though banned by Geneva and Rome. But the God of his experience is of by no means so definite and austere a character as this. The object of the raptures of the sentimental nature worshipper is vague and ill-defined. He feels, he feels intensely, but what he feels he does not know. He is carried out of himself and lost in a delicious sea of being. Thought and will give place to emotion and the distinctions of subject and object are lost. Though the experience may be afterwards interpreted as the worship of the Christian God, in itself it is without form and void. Of this divine reverie Rousseau gives us many glimpses; here is one of the less emotional and more attractive, his morning worship at Isle Saint-Pierre: "Immediately I rose from my bed, I never failed, provided the weather was auspicious, to run to the terrace to breathe the fresh and wholesome air of the morning. . . . I know no homage more worthy of the divinity than the silent admiration excited by the contemplation of his works. . . . It is especially at rising, wearied by a want of sleep, that continual habit inclines me to this elevation, *which does not impose the fatigue of thinking.* But to this effect my eyes must be struck with the ravishing views of nature. In my chamber I pray less frequently, and not so fervently; but at the view of a beautiful landscape I feel myself moved, by what power I am unable to tell. I have read somewhere of a wise bishop, who, in a visit to his diocese, found an old woman whose only prayer consisted in the single interjection 'Oh!' 'Good mother,' said he to her, 'continue to pray in this manner. Your prayer is better than ours.'[1] This better prayer is mine also." In experiences such as these God is but the name which he gives to the stimulus for these transports of being. The beauty and wonder of the world mean God.

Beyond the assertions that God is the prime mover of the world, the basis of its goodness, and the source of its beauty, Rousseau professes himself unable to go. He cannot say that his nature is like man's, that he is the sole principle of reality, or that he has created the world. His functions can perhaps best be epitomised as being those of the principle of order in the universe. Rousseau's religious emotions are not those of love, but of admiration. He seeks no favours,

[1] *Confessions*, XII.

he asks no love in return, he is contented to know and feel the perfect harmony of the world.

But while on its naturalistic side the religion of Rousseau sometimes suggests the "amor intellectualis dei" of Spinoza, on its moral side, it shows marked contrasts. The second point in his doctrine is the immortality of the soul and the certainty of rewards and punishments after death. Here we have the position later to be formulated more completely by Kant. The justice of God is invoked for this tenet. Having made man sensitive and having laid on him the duty of virtue, God cannot in justice leave his legitimate demands unsatisfied. Rousseau, like Kant, had no intention of saying that happiness is the reward and sanction of virtue, but only that it is its reasonable completion. His attitude is that of the Psalmist grieved at seeing the wicked flourishing like the green bay tree. "Had I no other proof of the immaterial nature of the soul, the triumph of the wicked and the oppression of the righteous in this world would be enough to convince me. I should seek to resolve so appalling a discord in the universal harmony. . . . I do not say that the good will be rewarded, for what greater good can a truly good being expect than to exist in accordance with his nature? But I do assert that the good will be happy, because their maker, the author of all justice, who has made them capable of feeling, has not made them that they may suffer. . . . This feeling relies not so much on man's deserts as on the idea of good which seems to me inseparable from the divine essence. I only assume that the laws of order are constant and that God is true to Himself."[1]

This soul of man is also only to be thought as free. "I am only aware of will through the consciousness of my own will, and intelligence is no better known to me. When you ask me what is the cause which determines my will, it is my turn to ask what cause determines my judgment; for it is plain that these two causes are but one; and if you understand clearly that man is active in his judgments, and that his intelligence is only the power to compare and judge, you will see that his freedom is only a similar power, or one derived from this. He chooses between good and evil, as he judges between truth and falsehood; if his judgment is at fault, he chooses amiss. What then is the cause that determines his will? It is his judgment. And what is the cause that determines his judgment? It is his intelligence, his power of judging: the determining cause is in himself. Beyond that, I understand nothing."[2] This freedom is thus a spiritual

[1] *Emile*, IV. [2] *Ibid.*

spontaneity which distinguishes man from the animate, as well as inanimate, world. It does not involve indifference toward the good, but the absence of external constraint in the choice or rejection of it. It means that his choice is his own and not the effect of an external cause. That the root of the act lies in the judgment rather than in a non-intellectual factor, does not for him affect the moral significance of the choice, for man is responsible for the right use of his judgment. To his wrong choices is due all the evil of the world. "Evil in general can only spring from disorder, and in the order of the world I find a never-failing system. Evil in particular cases exists only in the minds of those who experience it, and this feeling is not the gift of nature, but the work of man himself. Pain has little power over those who, having thought little, look neither before nor after. Take away our fatal progress, take away our faults and our vices, take away man's handiwork, and all is well."[1] The intellectualism of this is perhaps only in apparent conflict with his earlier famous saying, "l'homme qui médite est un animal dépravé".[2]

This spontaneity of the mind he illustrates further in his theory of knowledge. The fundamental fact is the experience of the self in its sensations. The sensations are of objects which are to be conceived as external to the self and causally related to its sensations, which arise independently of the will. Whether these external objects are themselves ideas or not, is not important; they are at least another than the self. "Through sensation objects present themselves to me separately and singly as they are in nature; by comparing them I rearrange them, I shift them so to speak, I place one upon another to decide whether they are alike or different, or more generally to find out their relations. To my mind, the distinctive faculty of an active or intelligent being is the power of understanding this word 'is'. I seek in vain in the merely sensitive entity that intelligent force which compares and judges; I can find no trace of it in its nature. . . . This power of my mind which brings my sensations together and compares them may be called by any name; let it be called attention, meditation, reflection, or what you will; it is still true that it is in me and not in things, that it is I alone who produce it, though I only produce it when I receive an impression from things. Though I am compelled to feel or not to feel, I am free to examine more or less what I feel."[3] Here Rousseau breaks

[1] *Emile*, IV. [2] *Discours sur l'inégalite.* [3] *Emile*, IV.

squarely with Helvétius and ranges himself with "the illustrious Clarke" and the English rationalists.

So, too, in his theory of conduct, the spontaneity of the individual is his principle. There is in man, taken by himself, a native tendency to self-expression and self-preservation, *amour de soi*. This tendency, since man is by nature good and reasonable, is identical with the love of order and justice, and is the root of all the virtues. Had man but remained in the state of nature in which he was created, his goodness would have been but the natural unfolding of a flower in a peaceful garden. Having made the fatal step of organising a social life, however, this same self-love became the root of all the evils. Man learned to compare himself with his fellows, and, with his consciousness of inequality, came pride, envy, and ill-will. Instead of *amour de soi* was *amour propre*. Yet still in our corrupt condition there remains to us the original voice of reason bidding us express our true nature and realise justice in the world. Morality is thus neither a seeking of pleasure nor obedience to law, but the self-expression of a nature fundamentally good.

Rousseau's optimism thus penetrates his whole creed: a benevolent God, who has created a marvellously beautiful world, in which He has placed noble and generous men, who, through the exercise of their wholly desirable freedom, have brought upon themselves evils, which, however, are bound to be redressed in a life beyond the grave, to the reality of which the justice of God is pledged.

If we ask where Rousseau found this optimistic world view, the answer is not far to seek. In its outlines it was identical with that rationalised Christianity then known as Deism and now prevalent as liberal Protestantism. It was Christian Theism minus the doctrines of the fall and redemption. "Born in a family where morality and piety reigned, educated with kindness by a minister full of wisdom and religion, I received from my tenderest childhood principles and maxims, others would say prejudices, which have never entirely left me."[1] Under the influence of Mme. de Warens and nature, he became "dévot presque à la manière de Fénelon". Instinctively averse to authoritative dogma, his reading of philosophy and his first intercourse with the sensationalists and naturalists at Paris developed his naturalistic tendency and helped pare down his inherited Christianity. Repelled by the anti-religious extremes of consistent sensationalism he seems to have fallen back upon the

[1] *Rêveries*, III.

English rationalists and sentimentalists, especially Clarke and Shaftesbury, to the former of whom he refers as "the illustrious Clarke who gives light to the world and proclaims the Being of beings and Giver of things,"[1] whose system, so simple yet so great, seems to him freer from contradictions and difficulties than any he has found. The influence of the sentimental optimism of Shaftesbury, known to him through Diderot's translation of the *Inquiry*, is evident throughout his moral theories as well as in his theology.[2] For the positive contents of his creed, therefore, Rousseau seems to have been indebted to these English believers in a rationalised Christianity. Even for the enthusiasm with which he held it, faint parallels may be found in the Platonising theologians and in Shaftesbury. But the life and spirit of it were his own, and it was these that made it the living force it was for his generation.

Turning now from this inherited content of his faith to that part of his teaching which is more peculiarly his own, we come to the problem of logical method and the basis of belief. And perhaps first it is well to note that Rousseau believes that he had a method. He tells us in his *Rêveries*[3] that he had reached the age of forty before he had attained any rational principles of living. Up to that time he had drifted at the mercy of chance influences, distracted from his duties "without scorning them but often without rightly knowing them". In his youth he had fixed upon that age as the limit of his drifting, and now that it had arrived, he withdrew from the world, changed his habits, his costume, and his friends, and thought out for himself a system of principles that might serve him for the rest of his life. These, once adopted after the most earnest investigation, he believed that he ought not again to subject to criticism since he could not hope ever again to be in a better position to test their truth. Constant revision would mean growing uncertainty and practical instability, a condition incompatible with the best conduct of life. Whether it was his years at the Hermitage and at Montmorency, issuing in the publication of his three main works, the *Contrat Social*, the *Nouvelle Héloïse*, and the *Emile*, to which he refers, or the period following the first *Discours* is not quite clear. At any rate, he gives us to understand that, following the

[1] *Emile*, IV.

[2] For Rousseau's debt to English thought, *cf.* Ch. Borgeaud, *J. J. Rousseau's Religions-philosophie*, i., 2. Cuendet, *La phil. religieuse de J. J. Rousseau*, I., iii., 111.

[3] *Rêveries*, III.

example of Descartes, his opinions were the result of systematic doubt and the adoption of a conscious method. To this account it is not possible to give full credence. As usual, Rousseau has read back into his motives the reasons which justified the results. But though we have to explain his retirement and philosophic activity by motives more human than youthful resolve, it is true that in his fifth decade he was forced, in self-defence, to examine the grounds of his instinctive beliefs and to justify them before his world. That his doubt at this time extended beyond the proofs of his beliefs to the beliefs themselves is far from likely. Rousseau's temper was too strongly emotional and too little intellectual to subject him to any agonies of doubt. "They had not persuaded me," he writes of his former friends, "but they had disquieted me. Their arguments had shaken me, without ever convincing me. I could find no good reply but I felt there must be one. I accused myself of unskilfulness rather than of error, and my heart replied better than my reason."[1] His task during these critical years, therefore, consisted in making clear to himself the grounds of his faith, in finding, as Mr. Bradley would say, bad reasons for what he believed upon instinct.

And in the first place it is significant that Rousseau does offer reasons for his beliefs. He has no intention of dividing human nature sharply against itself, and relying upon instinct to the exclusion of reason. His inclination seems rather to go with reason as far as it will carry him and then in its extremity take refuge in feeling. As in orthodox scholastic circles, reason is a good propadeutic to faith. And so in the *Profession of Faith* in the *Emile*, we find the usual rationalistic proofs for the existence of God, based upon the natural inertia of matter and the necessity for a Prime Mover, whose intelligence and benevolence are implied in the order and goodness of the world. It might be the voice of Newton or Clarke we hear in these physical considerations, adduced for the support of this theological tenet. So, too, in the discussion of the nature and immortality of the soul, while it is the moral argument upon which he ultimately relies, he is at pains to make clear the metaphysical point as to the natural distinctness of soul and body and the consequent possibility of their separation. Nor is there any suggestion that these reasonings are not valid or even that their validity rests upon their utility. He seems as dogmatic as the rationalistic theologians.

But in the next breath his voice may be raised against

[1] *Rêveries*, III.

reason and its friends, especially against its friends. No term is too harsh for him to use about the members of the materialistic group of whom he was once the associate. Any doctrine advocated by them was for Rousseau suspect. The frivolity and insincerity of their lives vitiated for him their teachings. "Their passions which governed their doctrines, their interest in making this or that believed, rendered it impossible to discover what they themselves believed. Can one look for good faith among party leaders?"[1] Conscious of the part played by the passions in his own life, he is inclined to demand moral integrity as the condition of intellectual leadership, if not of the attainment of truth itself.

Whether this distrust of the pronounced votaries of reason in his own circle had anything to do with it or not, we find him advocating a conception of belief in which reason plays a minor rôle. Undoubtedly the main explanation of his position is to be found in the felt inadequacy of reason to prove that which he believed. He could not but realise that that perfect world which was the object of his enthusiasm, and that moral order which was the standard of his life, were not capable of demonstration by any logical processes known to man. The severe and barren theodicy of the rationalistic deist might rest on such a logical basis, but not the emotionally satisfying system of Rousseau. Hence after having discussed the attributes of God he concludes: "If I have succeeded in discerning these attributes of which I have no absolute idea, it is in the form of unavoidable deductions, and by the right use of my reason ; but I affirm them without understanding them, and at bottom that is no affirmation at all. In vain do I say, God is thus, I feel it, I experience it, none the more do I understand how God can be thus. In a word, the more I try to envisage His infinite essence, the less do I comprehend it; but it is, and that is enough for me; the less I understand the more I adore. I abase myself saying, 'Being of beings, I am because Thou art: to fix my thoughts on Thee is to ascend to the source of my being. The best use I can make of my reason is to resign it before Thee; my mind delights, my weakness rejoices, to feel myself overwhelmed by Thy greatness.'"[2] And in his letter to Voltaire he writes: "I admit frankly that neither the affirmative nor the negative seem to me demonstrated by the light of reason alone, and that if the theist only founds his faith on probabilities, the atheist still less

[1] *Rêveries*, III. [2] *Emile*, IV.

exact founds his on the contrary probabilities."[1] And again he complains that men are "ignorant of just that which it is the most important for them to know, man. We see neither the soul of another, because it is concealed, nor our own, for we have no mirror of the mind. Born blind, we have no conception of sight and, unconscious that any faculty is lacking, wish to measure the limits of the world, though our short telescopes, like our hands, reach but two feet before us!"[2] "The jargon of metaphysics has never led to the discovery of a single truth, and it has filled philosophy with absurdities of which we are ashamed as soon as we strip them of their long words."[3] And in a letter to Moulton he explains that he has used this "jargon" because the materialists, whom he wishes to refute in the *Profession of Faith*, understood no other.[4] His conclusion of the matter is: "Sans le sentiment interne, il ne resterait bientot plus traces de verite sur la terre".[5]

But when we come to consider what Rousseau offers as substitute or supplement for reason, exact statements fail us. That there is an organ of religious and moral truth other than reason he asserts freely, but what it is and what are its relations to reason, he nowhere clearly says. The names for it are various, *sentiment*, *sentiment interne* or *intérieure*, *conscience*, *lumière naturelle*, *instinct moral*. By these terms he means to indicate a kind of immediate and infallible source of truth native to man and free from the possibility of error inherent in the reasoning processes. By this means man comes in contact with super-sensible reality and is furnished with the spiritual facts upon which his moral and religious life is built. Although these facts may not be explicable or reducible to system or even consonant with ordinary scientific views, they have a certainty and necessity which makes them the fixed points in any complete philosophy of life. Against these rocks the waves of rational scepticism and dogmatism beat in vain.

As applied to moral truth, the term conscience is the usual one, and we have the orthodox doctrine of its infallibility. He defines it as "an innate principle of justice and virtue". "Too often does reason deceive us; we have only too good a right to doubt her; but conscience never deceives us. She is the true guide of man; she is to the soul what instinct is to the body; he who obeys his conscience is following nature

[1] *Lettre à Voltaire*, 18th August, 1756.
[2] *Lettres sur la vertu et le bonheur.* [3] *Emile*, IV.
[4] *Lettre à Moulton*, 1st August, 1763.
[5] *Cf.* Cuendet, *op. cit.*, ii., 1. *Le scepticisme de Rousseau.*

and need not fear that he will go astray."[1] And yet although he claims infallibility for it, he insists that "the decrees of conscience are not judgments but feelings. Although all our ideas come from without, the feelings by which they are weighed are within us, and it is by these feelings alone that we perceive the fitness or unfitness of things in relation to ourselves, which leads us to seek or shun these things."[2] "To know good is not to love it; this knowledge is not innate in man; but as soon as his reason leads him to perceive it, his conscience impels him to love it. It is this feeling which is innate."[3] In a note he tries to minimise this distinction between idea and feeling by pointing out that it is a matter of emphasis, "when we are chiefly concerned with the object and only think of ourselves as it were by reflection, that is an idea. When, on the other hand the impression received excites our chief attention, and we only think secondarily of the object causing it, it is a feeling." Conscience is thus the instinctive emotional reaction to situations the nature and meaning of which are learned from experience. It is not the imperative of Kant or even the intuition of the neo-Stoics, but the moral sense of Shaftsbury.

But this organ of truth is not merely moral in its function, it is the source of an ultimate world view. By it we know that God is, and that there is a future life of rewards and punishments. Here the theory meets with more difficulty. It is not so hard to conceive that there is an instinctive reaction by which we respond to the value for us of various situations, our satisfactions and dissatisfactions indicating the real worth of conduct, for the world of values seems naturally related to our feelings, but when these same feelings are made the basis for belief in an objective order, the matter becomes not so clear. Apparently, as in the case of the conscience, strictly so called, he does not mean to assert the power of the feelings to give us new ideas for he recognises clearly enough that his religious ideas have had a history and are due psychologically to the associations of his childhood and youth.[4] This sentiment, therefore, must be also a subjective evaluation or test of the truth of ideas elsewhere derived. It is our emotional touchstone by which we distinguish the true gold from the false. Hesitating between theism and atheism, finding no compelling objective reason for decision, the strong emotional value of the former forces it upon our acceptance with an intensity and intimacy which are a substitute for reasons. It ought to be true therefore

[1] *Emile*, IV. [2] *Ibid.* [3] *Ibid.* [4] *Rêveries*, III.

it must be true. It fits in with the ideas we cherish, and gives organic unity to life. Lost in rapture at the vision of the divine there can be no question of doubt for Rousseau: "Quand je veux m'élever à lui je ne sais où je suis; n'apercevant aucun rapport entre lui et moi, je ne sais pas où l'atteindre, je ne vois ni ne sens plus rien, je me trouve dans une espèce d'anéantissement."[1] It is not a case of his accepting an idea but of being possessed by it.

Granted, then, that the feelings are not a revelatory, but a ratifying, faculty, there comes the question of validity. And here there meets us the problem of the pragmatism of Rousseau. In spite of the fact that the ambiguity of the term makes the use of it relatively safe, it also makes it undesirable to apply it without care. Recently Prof. Schinz[2] has included Rousseau among the objects of his anti-pragmatism crusade and has been followed in his classification by Cuendet and Hibben.[3] That there is some ground for this classification is beyond doubt. Rousseau by temper and inclination is true to the type. The theory would have found him a willing convert, offering him salvation from the mechanical logic of his time. But to recognise that this modern theory of truth would have answered his needs and clarified his thought, is not to attribute it to him. The distinctions in the history of thought are as real as the continuity and a doctrine of preformation is no more useful in history than in biology. While Rousseau, therefore, exhibits points of agreement with James and Schiller, his points of difference are equally vital.

In the first place he agrees with them in his emphasis upon useful knowledge. Emile is to be guarded from useless science: "The question is not to know what is, but only what is useful".[4] "I am content if he knows the 'wherefore' of his actions and the 'why' of his beliefs. For once more my object is not to supply him with exact knowledge, but with the means of getting it when required, to teach him to value it at its true worth, and to love truth above all things."[5] These passages Prof. Schinz cites as evidence that truth for Rousseau means "practical truth" in opposition to science. It is evident enough that he is drawing such a contrast here, but the slightest acquaintance with the remainder of the book should suffice to show that far from identifying truth in general with useful truth, such utilities are for him but fragments of the great body of knowledge

[1] *Nouvelle Héloïse*, v., 5.
[2] *The Monist*, 1909.
[3] Cuendet, *op. cit.*, i., 11. Hibben, *Phil. of the Enlightenment*, p. 157.
[4] *Emile*, III.
[5] *Ibid.*

from which must be carefully selected the parts suitable for youth. As the former quotation implies, there *is* a knowledge of what is, apart from what is useful, though it is not for the child and rarely for the man. The doctrine is educational not logical. Were we to take such practicality as evidence of pragmatic logic we must accuse most of the moralists of the age of Queen Anne.[1] That he agrees with Pope as to the proper study of mankind implies that there are other studies which the unwise may improperly pursue, improperly, not because they do not lead to knowledge but because they do not lead to virtue. So too, his comment on himself that "I have never seen him listen calmly to any theory that he believed harmful to the public weal," [2] refers to no theory of truth but indicates the primacy of his moral interest or the hastiness of his moral prejudice. To the same effect is his statement: "I know only that the truth is in the things and not in my mind which judges them, and that the less I put of my own in my judgments about them, the surer I am to come near the truth: thus my rule, to listen to sentiment more than to reason, is supported by reason itself".[3] Whatever we may think about the consistency of this testimony of reason against itself, it is clear that Rousseau has in mind no doctrine of subjectivity here but is appealing to an intuitive sentiment which, as giving immediate contact with an objective order, is more reliable than those mediate processes which are liable to be vitiated by the disturbing effects of conscious purpose. The mind does not create or form truth, it finds it, and its organ is this feeling or intuitive reason.[4]

In the second place, his doctrine shows pragmatic colouring in the place given to the feelings as grounds of belief. Not merely do they determine our judgments, but they have a right to do so. Passages could be multipled in illustration of this contention: perhaps the following are typical. "You say that my reason chooses the sentiment that my heart prefers, and I do not deny it. That is what happens in every deliberation where the judgment has not enough light to decide without the help of the will." [5] With reference to the immortality of the soul he writes: "As this assumption is consoling and in itself not unreasonable, why should I fear to

[1] *Cf.* J. Texte, *J. J. Rousseau and the Cosmopolitan Spirit in Literature.*

[2] *Dialogues*, II. [3] *Emile*, IV.

[4] *Cf.* Parodi, *La phil. religieuse de J. J. Rousseau, Revue de Métaphysique et de Morale*, 1912.

[5] *Dialogues*, II.

accept it?" "All the subtleties of metaphysics would not make me doubt the immortality of the soul and the reality of a benevolent Providence. I feel it, I believe it, I wish it, I hope it, and I will defend it to my last breath."[1] And in his reply to the Archbishop of Paris he suggests that some day, when wearied of fruitless discussions about creeds, men will come together in an assembly from which theologians would be excluded, and will agree upon the creed most useful to man for "We may by this means hope to approach as near to the truth as possible to men; for we may assume that what is most useful to the creature of his hand is most agreeable to the Creator".[2] "The inner proof or that of sentiment is the only one which can render all the others invincible."[3] And the Vicar's final appeal to Emile begins: "My son, keep your soul in such a state that you will always desire that there should be a God and you will never doubt it."[4]

Confining our attention to passages such as these, and ignoring those in which the belief is one which concerns values, for here Rousseau recognises that "La vérité morale n'est pas ce qui est, mais ce qui est bien," we find that while his doctrine is almost identical with that of the will to believe, it is not pragmatic. What he is contending for is just that which James explained was his own real object, the right to believe in cases where objective and conclusive evidence is lacking. So far is he from ignoring the existence and value of such objective grounds that his own position was assumed only after critical, or would-be critical, examination of such evidence. He admits: "I do not doubt, it is true, that the prejudices of childhood and the secret longings of my heart have weighed down the balance on the side most comforting for me. It is hard to keep from believing what one desires with so much ardour, and who can doubt that the interest for or against the judgments as to the future life decides the faith of most men as to their hopes and fears? All that might fascinate my judgment, I am sure, but not affect my good faith, for I feared deceiving myself on every point." The issue being the grave one of risking eternal life for the pleasures of the world, it was necessary to reach some conviction. Unable to solve all the mysteries involved, "I adopted in each question the belief which seemed to me the best established immediately, the most credible in itself, without stopping for objections which I could not resolve, but which were confuted by other objections not less strong in the opposed system".[5]

[1] *Lettre à Voltaire.* [2] *Lettre à Ch. Beaumont.*
[3] *Nouvelle Héloïse,* V., v. [4] *Emile,* IV. [5] *Rêveries,* III.

Whether this account of his own procedure is biographically correct or not, there is no doubt that it gives the key to the interpretation of his various statements of doctrine. However slight his interest was in pure science he never meant to substitute for it faith. So far as an objective procedure could go he was willing to go with it. But when the path of reason lost itself in a confusion of issueless alternatives he claimed the right of committing himself to this "instinct of the soul". He took no pains to mark out the limits of reason as did Kant, nor did he, as James, define the conditions under which it was reasonable to exercise the right to believe, but his thought is similar; there is a field for reason but it is limited, and there are conditions under which we must believe without proof. Those conditions, as implied in the passage just quoted, are a vital issue, a living option, and the silence or contradictions of reason. In such a situation it is the part of wisdom to fall back upon that which commends itself immediately to our natural feeling. It is a case of rationalist rogues falling out and honest men getting their due. In Rousseau's conception this honest common-sense nature which comes to its own expresses itself in the form of an emotionally welcomed intuition, rather than in the will, as in the doctrine of James. His emphasis is upon the feeling of the truth or the seeing of the fact, rather than upon the legitimacy of the conduct based upon an assumption. The right to cherish a lovely vision, rather than to lead a strenuous life, is that for which he contends, to be a hearer, rather than a doer, of the word.

The passage in the letter to the Archbishop of Paris seems to suggest, perhaps, more of a pragmatic tendency than has been admitted, but when we consider its context it loses its significance. Far from discussing the nature of truth, Rousseau is here concerned with the question of external unity in public worship, with *la religion civile*, as he calls it in the *Contrat Social*. A pronounced individualist in personal religion, he recognises the necessity for, and at the same time the difficulty in attaining, some unity in the religious life of a people. The state cannot tolerate every variety of belief. Unable to reach a common body of doctrine upon rational grounds, the only resource is to agree upon a system useful to the state, in the belief that the promotion of the welfare of man is the object of the divine will. The problem is a purely practical one, essentially a political rather than a philosophical matter. That Rousseau believes that the useful doctrine is true, is quite probable, but he has no intention here of making its utility the essence of its truth.

On the contrary, the implication is rather that there is an objective order of truth to which we can at best but approximate. As good citizens it is the part of contentious sectaries to lay aside their private dogmas and realise the true end of civic religion, the welfare of the state.

Nor in his advice to Emile, does Rousseau mean to found belief in God upon desire. To desire the existence of God means for him to be in a state of mind free from pride and self seeking and accordingly more ready to recognise the objective truth revealed in feeling. "The silence of the passions" is for him an indispensable condition for the reception of truth, and it is this that is implied in the desire for the existence of God. The real ground for that belief would be not in the desire but in the inner voice which makes itself heard in this silence, in the conviction felt when nature has had a chance to speak.

If now, we ask what ground there is for believing that these intuitive convictions are true, we are thrown back again upon Rousseau's fundamental optimism. Human nature, as the product of a good God, is essentially and primitively good. Our original instincts and cognitive data are given by God and are adapted by him to our practical and cognitive needs. If we can only free ourselves from the disturbing influences of civilisation, strip ourselves of the accretions of error due to our wilful mistakes, and regain something of the simplicity of vision with which we were originally endowed, we may hope to attain truth. It is this optimistic prejudice which lies at the root of the popular Stoic and even Christian doctrine, that gives to immediate feeling its weight with Rousseau. The ideas thus accredited are not man-made, but are part of the universal heredity from God.

The apparent circle involved in making belief in God depend upon feeling and feeling depend for its validity upon belief in God, means that Rousseau has reached his ultimate here. His optimism, or his belief in God, is his primary postulate, rooted in his emotional temper. It has no logical ground but only psychological fixity. Accepting it as he must, its existence and validity then seem natural upon the basis of its content. Like Descartes, he feels that whatever has the same kind of certainty, as this idea of God, must be true, for God would not deceive him, only with Rousseau the certainty is one of feeling and not of insight. This optimistic postulate he does not make explicit in his logic, but it lies at the root of his thinking not only in religion, but in politics, social theory, and education. Thinking is

one of the artificialities of life, one of the luxuries of a corrupt civilization, and as such its results are less trustworthy than the simple intuitions of a state of nature.

If, then, we understand by pragmatism a general theory of knowledge which denies the objectivity of truth, and places its essence in its utility, we must refuse to identify with it this theory of Rousseau. At the same time we must recognise his likeness in personal temper to pragmatists of the type of James, a likeness which shows itself in his impatience of useless knowledge and his interest in defending a sphere for the exercise of faith. But his real place is with the intuitionists of the Platonising school, with the men of enthusiasm and of vision, believers in an Absolute to be felt and seen, rather than to be thought. In this respect he is the forerunner of Jacobi and the faith philosophers with their opposition of *Vernunft* and *Verstand* and their rejection of demonstration. To Pascal, too, we can recognise his debt in spite of the contrast in spirit. There is the same distrust of reason in matters of faith, the same sense of the necessity of practical choice in the absence of knowledge, the same reliance on the reasons of the heart—but here the likeness ends. Pascal is a Christian, Rousseau, in spite of his profession, is not. For the former, the only escape from the ignorance and misery of life is by the *salto mortale* of faith in the supernatural revelation of God. Even this faith itself is a gift of God to a human nature too radically evil to will its own salvation. For the latter, truth is to be had by a return to the natural innocence of the heart. For Rousseau there is no tragedy, no agony, no great gulf fixed between fallen man and his salvation, his destiny is in his own hands. In Pascal's classification it is with the Stoics that Rousseau would belong. With Kant his relation is more largely one of stimulus than of logical likeness. It was to his preaching of anti-intellectualism in morals and religion that Kant recognised himself as indebted.[1] But, while they are at one in their belief that these aspects of life have a foundation other than that of science, they differ in their conception of what it is. Instead of the postulates of the moral life, Rousseau relies upon the primitive instincts of human nature, upon an intuition which, while not the *intellectuelle Anschauung* which Kant rejects, is, in its immediacy, liker to the *Vernunft* of the faith philosophers than to the practical reason of Kant. In this respect he is not so far along the path to pragmatism as is his more illustrious successor.

[1] Hartenstein, ed., viii. 618, 642; *cf.* V. Delbos, *Rousseau et Kant, Revue de métaphysique et de morale*, 1912, also his *La phil. pratique de Kant*, ch. ii.

III.—MR. RUSSELL'S LOWELL LECTURES.

By Prof. L. P. Saunders.

A Criticism.

I shall here attempt to show that Mr. Russell's most recent account of our knowledge of the external world is, on purely general grounds, of little or no philosophical value.

As, then, the objections to be raised refer to what may be described as his general standpoint, treatment and presuppositions, I shall not have much to say about the details of his position. These have already been subjected to criticism by Mr. Pritchard and others.[1]

For the sake of brevity, I shall assume that Mr. Russell's Lowell Lectures have been read. This should reduce the insertion of quotations to a minimum.

In my opinion, Mr. Russell's whole account is vitiated partly because he introduces distinctions that do not exist and leaves out others, of great philosophical importance, that do; and partly because his purely 'logical' method of solving difficulties is epistemologically unsound.

But, like everything Mr. Russell writes, this book is astonishingly clever, ingenious and suggestive—his "manipulations" are quite amazing!

An hypothesis that is not purely fictitious presupposes facts to be explained; and these facts must, of course, be distinguished from the facts of the hypothesis, which may be called, in contrast to the others, the assumed facts. If an hypothesis is the only one that explains the facts, and if the facts are not existentially independent, then it is true. And this may be taken to imply that the assumed facts form part of the same "universe of discourse" as the presupposed facts. So much, I think, would be admitted.

It is also generally held that of rival hypotheses that one is the *best* which is the least complicated, other things being equal. But as the 'best' hypothesis is not necessarily the true one, this distinction cannot claim any logical support.

[1] Notably Mrs. Adrian Stephen's extraordinarily clear and brilliant discussion.

It cannot be proved that the least complex among hypotheses is the true one; and it is certainly not self-evident that it must be. That is to say, there is no logical justification for preferring a simple explanation to a complex one. For, after all, there is no reason to suppose that Reality has a bias in favour of 'short cuts'.

The facts presupposed by an hypothesis, those which, in other words, it claims to explain by assuming certain *other* facts, stand in need of amplification. They are not *mere* facts, in the sense in which, for instance, sense-data may be said to be; but facts known or thought, truly or falsely, to be related in definite ways. That this is so is obvious; for, otherwise, there would not be anything to explain. Similarly, the facts of the hypothesis, the assumed facts, are not *mere* facts.

In truth, a *mere* fact is *not* a fact at all. So long, therefore, as this is recognised, it is enough to say that an hypothesis assumes facts to explain other facts. And this is just why *mere* facts, entities like sense-data in their purity, cannot as such either explain anything or be explained by anything.

Further, all hypotheses are conceptual constructions; but not all conceptual constructions are hypotheses. Conceptual constructions that do not explain anything are not hypotheses.

If a 'thing' is conceived as related in a way in which it is not known to be relatable or conceived to have properties not known to be compatible with its nature, the concept may be called ideal; if it is conceived in a way in which it is known not to be relatable, the concept may be called fictitious; and if it is conceived in a way in which it is relatable it may be called real.

A metaphysical explanation claims, as such, to be true; a scientific explanation, as such, only claims to explain. Hence ideal and fictitious concepts may enter into scientific, but not into metaphysical explanations. In other words, if an explanation *is* metaphysical, the concepts it uses must be real. This, of course, is not to be taken to mean that Philosophy, any more than Science, should proceed independently of hypotheses. Whether it should or not, I do not here claim to decide. The point is that if Philosophy proceeds hypothetically, its hypotheses must at least claim to involve real concepts. Thus, if an hypothesis is either avowedly not of this sort, or can be shown not to be, it cannot claim any metaphysical significance.

Logical manipulation is a process that has as its products

logical constructions. A logical construction is, so far as I can see, a group or collection constituted by known entities conceived as related in a way such that they, as a whole, shall have or necessarily involve certain (assigned) properties —stated otherwise, a logical construction is a group or collection of known entities conceived as related in such a manner that it, the group or collection, shall have certain (assigned) properties.

The entities that enter into a logical construction may be called the constitutive entities, the relations may be called the constitutive relations, and the 'involved' properties, the assigned properties.

Thus we may say that logical manipulation is the process that 'converts' known entities into constitutive entities, and properties into assigned properties; and it does this by conceptually relating known entities in a way that (necessarily) 'involves' their having the properties assigned.

Whether or not the assigned properties are the properties of something else does not affect the character of the process, manipulation, as such, nor the nature of its products, logical constructions.[1]

However, a construction may be called a translated construction when its assigned properties are 'borrowed,' *i.e.* the properties of something else, real or presumptive.[2]

The following definitions are also relevant to the discussion, *viz.* :—

A construction may be called abstract when its constitutive entities are pure abstractions, *i.e.* are either (i) sense data, or (ii) entities of the same order.

A construction may be called concrete when its constitutive entities are concrete, *i.e.* not pure abstractions or entities of the same order as sense data.

A construction may be called ideal when its constitutive relations are unverified, in the sense of not known to be, relations of entities of the kind of its constitutive entities.

A construction may be called real when its constitutive relations are verified (*i.e.* known to be) relations of entities of the kind of its constitutive entities. A construction may be called a fictional construction when its constitutive relations are known not to be relations of its constitutive entities.

One of the peculiarities of logical constructions is the way in which they are arrived at. You start with certain properties, and the problem is to 'define' other things in such

[1] Hereinafter by construction I shall mean logical construction.

[2] Whether or not *all* assigned properties are borrowed, I do not so far decide.

a way that they, as an interrelated whole, shall have or involve these properties—*i.e.* it may be said to consist in defining a 'subject' that shall as such involve certain predetermined properties.

It must be admitted that there is no logical difficulty in conceiving two different kinds of thing to have some identical properties in common. But it is impossible to conceive either (1) instances of different kinds having the same properties, or (2) instances of one kind having no common properties. Hence if a *fact* x has as its properties a, β, γ, a construction y cannot have as its constitutive properties these very properties; but it may have either only some of them or all of them and more besides. This is, I suppose, quite clear.

Next, it is important to realise that, as Hume pointed out long ago, it is not possible to "infer" to know *a priori*, the properties of anything. The question is therefore raised as to what can be meant by saying that things related in certain ways as such "involve" certain properties. It seems quite clear that all "reasoning" is hypothetical, since it *assumes* universality or identity. Hence when it is said that the relatedness of certain things in certain ways "involves" their having certain properties, all that can be meant by "involves" is either that the things in question, related in the given ways, are *known* to have the properties said to be "involved" or are apprehended (*i.e.* "reasoned") to have them on the assumption of their identity to other things *known* to have them. (It is in this sense that reason is "indirect knowledge".)

These considerations show that *all* constructions are hypothetical, in at least the broad sense that they are not known *facts*. Hence if Mr. Russell claims anything at all for his special hypotheses, he must show that they are, in some important sense, better than those hitherto formulated. I hope to show that he has completely failed to do so.—To continue:

Propositions involving concepts that are either ideal or fictional may be said to contain 'uncertain' factors or 'matter'. Such propositions may be called impure. A proposition that involves no 'uncertain' factors (*i.e.* a proposition that only contains real concepts) may be called pure.

An impure proposition is said to be logically translated when, its meaning remaining unaltered, real concepts are substituted for its ideal or fictional concepts. The products of logical translation may be called translated propositions. An untranslated proposition, therefore, will be an impure

proposition that has not been subjected to logical translation.

It is clear, I suppose, that if logical translation has any metaphysical value it must claim either (1) to constitute as such a proof of the truth of the propositions translated, or claim (2) that its products, translated propositions as such, are more probably true than untranslated propositions.

A logical objection to logical translation would contend either (1) that a proposition cannot be logically translated without altering its meaning, or (2) that if a proposition can be translated without any alteration in its meaning, it is inconsistent to maintain either (i) that the translated proposition is true and the untranslated proposition false, or (ii) that the degree of probable truth of the proposition untranslated is less than that of the translated proposition. Now although neither of these objections, in themselves, go any way to showing that the 'new' propositions supposedly reached by 'translation,' are not true as such or not more probably true than the 'original' impure propositions, none the less they are conclusive, if valid, against the possibility of logical translation. I submit that the logical objections in question are obviously valid. If so, logical translation must be regarded as the process that substitutes real constructions for ideal or fictional concepts. Thus understood, a proposition X may be said to be the logical translation of some other proposition Y, if the constructions contained in X are real *and* constructions whose assigned properties are the *same* as those of the ideal or fictional concepts contained in Y. It follows from this that the constructions contained in a translated proposition are translated constructions (see p. 31). This does *not* imply that the concepts of *all* pure propositions are translated constructions.

If some propositions involve more than one concept or construction, there can be degrees of purity, and so, of course, degrees of translation. From this point of view, a completely translated proposition would be a pure proposition.

I now go on to state, in my own words, what I regard Mr. Russell's main thesis to be and what I think it implies:—

I. In the degree to which (scientific) propositions can be purged of uncertain 'matter' to that degree will their probable truth be increased. In other words, pure propositions are more probably true than propositions that are not pure or are less pure.

II. This elimination can be effected by logically translating

(scientific) propositions in 'terms of abstract constructions' (see p. 31).

III. A complete translation of *all* scientific propositions by means of abstract constructions would be either the truth about, or what is most probably true of, Reality in so far as it is *judged*.

I believe this is a fair statement of Mr. Russell's general position and its implications. Still, I wish to emphasise the fact that Mr. Russell himself does not make the precise statements that I have given as essentially representing his contentions. It is not improbable, of course, that I have, through misunderstanding, misinterpreted them. I hope, and believe, I have not. But should I have done so, then a good deal of what I shall say will be irrelevant as criticism of Mr. Russell. And then my only excuse will be that the points raised and discussed are of importance in themselves. However, if I am doubly deluded, Mr. Russell, I feel sure, will make this amply clear—should he think it worth while.

If one of the following propositions can be substantiated, Mr. Russell's position (or what I take his position to be) must be rejected, *viz.*:—

a. That scientific propositions cannot be logically translated into propositions whose constituent concepts are abstract constructions.

β. That if the elimination of uncertain 'matter' could be effected by logical manipulation and translation, this in itself would neither constitute (i) a proof of the truth of the resulting body of translated propositions, nor (ii) add to the degree of their probable truth.

I am of opinion that both of these contentions can be shown to be valid. I shall consider objection β first.

β (i) If it can be shown that the grounds for asserting the truth of a pure proposition must be other than the fact of its purity, it will have been shown that the logical translation of an impure proposition, howsoever it be effected, goes no way in itself to establishing the truth of the translated proposition.

To do this it is only necessary to point out (1) that the truth of a proposition is other than its purity; (2) that impure propositions may be true; and (3) that pure propositions may be false.

If calling a judgment pure means that it is verifiable, then, of course, every pure judgment is true, since to be verifiable is to be true. The plain fact is, however, that the *words* pure and verifiable are not synonyms; and to suppose that they are, is to regard logical translation as equivalent to

verification, or, at least, to a process that *makes* propositions verifiable. Now, as a matter of fact, it is nothing of the sort, nor, it should be clear, does it claim to be. Logical translation can only, and does only, claim to substitute real constructions for concepts that are not real. To contend, therefore, that pure judgments as such are true is to contend that what *may* be true *is* true. And this is untenable.

In brief, logical translation is not verification. It is also important to realise that verification is not judgmental.

The above is a general argument against maintaining that translated propositions as such are true. But, so far as Mr. Russell's general standpoint is concerned, at least two other special arguments may be adduced. For Mr. Russell, uncertain 'things' are unverified 'things,' *i.e.* 'things' that are not *given*. Thus, admitting that the *truth* of a proposition is other than its *purity* (and I do not see how this can be denied) Mr. Russell can only hold that pure propositions are (certainly) true if he is prepared to maintain that their truth is *given*—or, at least, that the truth[1] of the general proposition *All pure propositions are true* is *given*. Further if it could be shown that Mr. Russell's translations are *not* logical translations, on the ground that *his* constructions are not real, the fact, if it were one, that translated propositions are true would go no way to showing that the propositions he submits are true. I shall attempt to show further on (see p. 40) that his constructions *are* either fictions, or ideal constructions.

This concludes my substantiation of the first part of objection β. Before proceeding to the second part, I wish to emphasise the fact that the sense in which I am using the word verifiable is both the only important sense and also the sense in which Mr. Russell uses it. Throughout verification means for him being *given* (in intuition). Thus, in speaking about the notion of cause, he says, "In so far as a causal law is directly verifiable, the thing inferred and the thing from which it is inferred must both be data, though they need not both be data at the same time. . . . But we cannot become acquainted with a particular except by its being actually given. Hence the particular inferred by a causal law must be only *described* with more or less exactness; it cannot be *named* until the inference is verified"[2]—*i.e.* until the inferred particular is *given*.

[1] Incidentally, I should like to point out that to speak of some propositions as being *self-evidently* true is nonsense. The truth of a judgment cannot be self-evident (this statement is an analytic definition), and no *universal* judgment can be verified, *i.e. given*.

[2] Pp. 213, 214.

In any other important sense of verification, untranslated propositions are just as much or as little verifiable as translated propositions, impure propositions as much or as little verifiable as pure propositions. And, so far as their truth is concerned, my contention is, that, even in the strict sense of verification, a pure proposition as such is not more verifiable than an untranslated proposition. The only propositions that are verifiable are true propositions.

β (ii) I have now to show that the elimination of uncertain matter effected by logical translation does not even add to the degree of *probable* truth of the resulting propositions. In other words, I contend that the degree of probable truth of a translated proposition cannot be asserted to be higher than that of its 'corresponding' untranslated proposition—or, what comes to the same thing, that higher degrees of purity do not as such involve higher degrees of probable truth. I also shall attempt to show that, even if it is a fact that the degree of probable truth of a pure proposition is higher than that of an impure proposition, the degree of probable truth of Mr. Russell's 'translated' propositions cannot be maintained to be higher than that of untranslated propositions.

I shall, adduce then two arguments, one a general objection, the other a special objection.

The general objection will have been substantiated if it can be shown either that (1) there is no sense in saying that the degree of probable truth of *any* proposition is higher than that of any *other* proposition; or that, whether this be a fact or not, (2) it is not legitimate to maintain that the degree of probable truth of a translated proposition is higher than that of the corresponding untranslated proposition. And to establish the special objection it is only necessary to show (3) that Mr. Russell's constructions are not real.

To this end, a brief discussion of probability is necessary. And this I approach indirectly. Suppose a bag contains five balls, four red and one white. According to the mathematical theory of probability, the chance of drawing a white ball is $\frac{1}{5}$, and of drawing a red $\frac{4}{5}$. Precisely what these statements mean is a disputed question. But I think all would agree that fractions representing chances or degrees of probability cannot be regarded as applying to *particular* events. If they stand for anything at all, it is of the proportionate order. That is to say, what is affirmed in all such cases is, stated generally, that in an infinite number of occurrences of

the event in question the proportion of its occurrence in some specified way to some other specified way is such and such a proportion. Whether or not this proportion can be determined exactly is, I understand, a disputed point. Thus, in the example given, it may be asserted *either* that in the infinite number of events that is constituted by an infinite series of drawings the proportion of white to red balls drawn *is* (or would be?) $\frac{1}{4}$, *or* that the proportion is some fraction that falls short, or exceeds, $\frac{1}{4}$ by an infinitely small amount. Of the two, I prefer the first. But both, it seems to me, are entirely gratuitous; and by this I mean that there is no evidence in favour of either, *i.e.* if they are put forward at all, they must be put forward as *a priori* judgments or ultimate belief. *This* is a point, however, that I shall not consider. And I am not sufficiently versed in the mathematics of infinite numbers to be able to decide whether their 'nature' is such that it is possible to assert, in the case of an infinite number of events, that the proportion of events of one kind to events of another kind is such and such a proportion.

What I do wish to urge is that if numbers representing probabilities are interpreted in some such way as the one just given that then the theory of probability is intrinsically inapplicable to the *truth* of propositions, if it is a fact that a judgment is either true or false, and not possibly sometimes true and sometimes false. Admitting this it cannot be argued that the chance or probability that a judgment X is true (or false) is $\frac{1}{2}$, since this would mean that X, "in the long run" (an infinite 'run'), was as often true as false. In saying that this cannot be maintained all I mean is that it is inconsistent with the view that a judgment cannot be sometimes true and sometimes not true. I do not intend to assert that, in itself, the position is either nonsensical or untenable. And, fortunately, I need not attempt to decide the question. For, if what is true (or false) cannot be sometimes not true (or not false), then no meaning can be attached to the statement that a proposition P is more probably true than some other proposition Q; and if what is true (or false) can sometimes be not true (or not false), then all that could be meant by saying that a proposition P is more probably true than some other proposition Q, is that P is *always* true and Q only sometimes true or never true. Hence in maintaining that translated or pure propositions are more probably true than untranslated or impure propositions either nothing at all is asserted or else what is asserted is that the former are *always* true and the latter either are only sometimes true or

are never true.[1] But I submit that this is not what is intended; and, in any case, it seems quite unjustifiable.

On the other hand, *if* the numbers representing probabilities do apply, directly or indirectly, to *particular* things or events, it seems plausible to argue that the probabilities, whatever they may be, representing the different possible ways of occurrence of an event X *also* represent the degrees of probable truth of the propositions that severally assert X's occurrence in those ways. Thus, if the probability that a white ball is drawn in any given draw is $\frac{1}{5}$, and that of a red $\frac{4}{5}$, it seems plausible to maintain that the degree of probable truth of the proposition, *A white ball was (or will be) drawn*, is $\frac{1}{5}$, and that of the proposition, *A red ball was (or will be) drawn* is $\frac{4}{5}$.

But this cannot be accepted because, as I have already pointed out, a particular[2] proposition is simply either true or false, *i.e.* there are only two alternatives.

This seems to be one way of showing that numbers representing chances or probabilities do not apply or refer to particular events; since the only meaning, it is plausible to contend, that can be attached to a statement to the effect that the chance of drawing a red ball at some particular drawing is, say, $\frac{4}{5}$, is to regard it as an indirect way of asserting that the chance that the proposition is true that affirms the drawing of a red ball at the particular drawing in question is $\frac{4}{5}$.[3]

Consider another case. If A and C stand for propositions, A^1 and C^1 for their contradictories, then one or other of the following conjunctives is true, *viz.*, AC^1, AC^1, A^1C, AC^1. Hence it is plausible to maintain that the chance that the conjunctive AC is true is $\frac{1}{4}$; the chance that the alternative *Either* AC *or* AC^1 is true $\frac{2}{4}$; that of the alternative *Either* AC *or* AC^1 *or* A^1C $\frac{3}{4}$; and that of the proposition *Either* AC *or* AC^1 *or* A^1C *or* A^1C^1, $\frac{4}{4}$. Here again, however,

[1] Or, as another alternative, that the former (pure or translated propositions) are sometimes true and sometimes false and the latter never true, or that the proportion of times true to times false is greater in the one case than in the other.

[2] By a *particular* proposition I here mean an *instance* of a class of propositions that are all 'about' or 'of' the same fact.

[3] It is important to realise that assertions that express chances are not either 'problematic' or 'apodictic,' but 'assertoric'; and it is also important to realise that they claim to be true, and not to be "probably" true—whatever this may mean. That is to say, propositions that express calculated 'chances' claim to be true propositions. In other words, all such calculations start with facts (or supposed facts), and 'deduce,' validly or invalidly, other facts (or supposed facts). Succinctly put, what is probable is a fact, and not, so to speak, a favoured possibility.

the contentions must be rejected, and for the reasons already given. In the present case the apparent cogency of the claims made is due, I think, to confusing the truth of beliefs with beliefs as such. That is to say, there may be some sense in saying that the chance or probability that any *one* of the four conjunctives is *believed* is $\frac{1}{4}$; but none in saying that the probability that any *one* of them is *true* is $\frac{1}{4}$.

I conclude that it is meaningless to speak of any proposition as being more probably true than any other proposition.[1]

This conclusion may be reached from a different point of view. What is asserted is always either a predicate or a relation, and a predicate or relation either *is* or is *not* the predicate or relation of that of which it is asserted. Otherwise put, *all* propositions are "assertoric". A "problematic" proposition is an elliptical hypothetical—[2] *e.g.* S *may* be P, means that if S is M it is P, *i.e.* SM *is* P. And a so-called "apodictic" proposition is not a *kind* of proposition, but, if anything, a kind of predicate or relation. But, my point is, to assert that S is *probably* P either means that the probability of S being P is such and such, or else it has no meaning at all.

This concludes the first part of the general objection (see p. 36 above). I have now to show that even if it is legitimate to maintain that some propositions are more probably true than others, it is not legitimate to maintain that translated propositions are more probably true than the corresponding untranslated propositions.

Let TP stand for the class of translated propositions, and UP for the class of corresponding untranslated propositions; also let tp_1, tp_2, tp_3 . . . etc., etc., stand for the members of class TP, and up_1, up_2, up_3 . . . etc., etc., stand for the corresponding members of class UP. The position in dispute affirms that tp_1 is more probably true than up_1, tp_2 more probably true than up_2, etc., etc. Now as a 'thing' S_1 can only be affirmed to be more probable than some other 'thing' S_2 if the probability of the former is higher or greater than that of the latter (this is at least *one* essential pre-condition) it follows that the probability that tp_1 is *true* is greater than the

[1] By saying that X is more probably true than Y, I mean that the probability that X is true is higher than that of Y. I do not want to be told that I am confusing probability with probable; for part of what I contend is that the meaning of probable (or more probable) is either the meaning of probability (or higher probability) or else it has no meaning at all. This part of my contention is clearly brought out in the brief discussion given above.

[2] Not in the way in which a particular proposition is an 'elliptical' universal, for a particular can only be said to 'imply' a universal, and not to be a universal.

probability that up_1 is true, that that of tp_2 is greater than that of up_2, etc., etc., *if* the members of class TP are severally more probably true than the corresponding members of class UP. But, unfortunately, there is no way of establishing this 'fact'. To calculate the probability of anything 'being something in particular' it is necessary to establish first of all an alternative judgment claiming to set forth all the relevant mutually exclusive and collectively exhaustive particulars. My contention is that in the case in question no such relevant alternative judgment can be made.[1]

I now proceed to substantiate the special objection referred to above (p. 36)—that Mr. Russell's 'translated' propositions are not more probably true than untranslated (scientific) propositions because his constructions are not real but are either ideal or fictional (see p. 31)—*i.e.* on the ground that Mr. Russell's 'translations' are not, *ex hyp.*, translations at all.

According to Mr. Russell, whatever is *given* is certain; and among *given* entities he includes all sense data, some 'facts' of introspection, some of memory, and a few simple and directly apprehended relations. These certain entities may be called *data*. Besides data, there are other entities, not factual but judgmental, which he also regards as certain, *viz.*, some purely "logical" propositions. These may be called certain *premisses*. And, as we have seen, his contention is that propositions involving constructions whose con-

[1] Against the general arguments adduced in the text it may be urged that Mr. Russell simply means there is *more* reason for believing (*i.e.* asserting) that translated propositions are true than there is for believing that untranslated propositions are true. Now if this does not mean that the probable truth of the former is greater, or if it does not indirectly imply this, then my answer simply is as follows: A proposition is either true or false, and a proposition can only (logically) be asserted to be true if it is implied in some other true proposition or other true propositions. This means, in effect, that there either is or is not *reason* for asserting a proposition's truth, and that, so far as logic is concerned, there is no such thing as *more* reason—the latter, if it has any meaning, is psychological.

Surely, it may be argued, if the fact asserted by a proposition P explains *all* the facts of a given order, there is *more* reason for believing P than some other proposition Q, that only explains some of the facts of the order in question? This is a mistake. There could only be *more* reason for believing P and less reason for believing Q in the sense that there was some reason for asserting P's truth and none for asserting Q's. But the "same reason" for asserting P's truth must be, logically, not *a* reason, but *the* reason. Generally what that reason is I have already stated. In the present case, P could only be asserted to be true, if it could be shown that the fact asserted by it was the only fact that explained the given order of facts, and then only if the facts in question are facts *and* facts which are not existentially independent.

stitutive factors are certain—*i.e.* are *data*—are more probably true than propositions involving constructions that are not of this order—with the exception, apparently, of those purely logical propositions which he accepts as indubitable, *i.e.* with the exception of certain *premisses*.

Now if it can be shown that Mr. Russell's constructions are not real, it will follow that his translated propositions cannot as such claim to be more probably true than untranslated propositions. To this end I shall proceed to examine Mr. Russell's claim that the integral parts or constitutive factors of his constructions are "verifiable" entities—*i.e.* certain or indubitable. This examination will be comparatively lengthy, and involve the discussion of points that are not directly relevant to the issue in dispute. I introduce them here on the grounds of convenience.

I begin with a brief account of expectation, belief, doubt, inference, and certainty, and their relations.

A belief is an *asserted* content. To believe R is to *assert* R. If assertion and judgment are synonyms, then *a* judgment, in the sense of an instance of assertion as such, is not *a* belief. Otherwise *a judgment* and *a belief* are synonymous terms. To *infer* R is either to know or to assert R—*i.e.* an inference, in the sense of a *conclusion*, is either a belief or something known. This may be objected to on the ground that what is inferred is not as such believed or known—*i.e.* on the ground that a conclusion as such is not belief or knowledge. But this objection is due, I think, to confusion. I admit that *R*, in the syllogism, *e.g.*, *P*, *Q* ∴ *R*, is not necessarily believed or known. This, however, is irrelevant, since *R*, I contend, is not the *conclusion*, but '*R is implied by P and Q*'. This is the real *conclusion* or *inference*, and this is either believed or known. Further, it is important to realise that *implication* is not the only relation assertable. But when this is the relation *asserted* or *known* (*i.e.* immediately apprehended) it may be convenient to call the judgment, belief or knowledge an *inference*. Similarly, you may call inferring *disimplication*, if by this is meant that what is asserted or known is a relation of implication. From this point of view, every judgment or belief is not an inference. But every inference is either a judgment (or belief) or an instance of knowledge.

Finally, in this connexion, it is misleading to speak of *inferring* a belief or judgment. Such a statement is meaningless. And I think it is very important to realise this. A belief or judgment is an asserted 'content,' is 'something' asserted, and to say that, *e.g.*, the assertion of R is *inferred*,

either means that what is asserted is a relation of implication, or else it has *no* meaning at all. To repeat, my contention is that to say, *e.g.*, that R, a judgment, is *inferred*, can only mean that R is an asserted implication, and *not* that the *assertion* of the implication R, whatever it may be, is *inferred*. In a word, to *infer* is to *assert;* to say, then, that a belief is inferred comes to saying that an asserted something is an asserted asserted something; and this is pure tautology.

But just as there is no sense in saying that the 'origination' of any belief is *inferential*, similarly there is no sense in saying that it is *causal*. And it is here that Mr. Russell[1] falls into error, and is involved in inconsistency. His position, I think, may be fairly expressed as follows: Beliefs are either ultimate or non-ultimate, and non-ultimate beliefs are either *inferred* or *caused*. A non-ultimate belief may be said to have 'grounds'; the 'grounds' of inferred beliefs are *premisses*, those of caused beliefs are *facts;* the relation between an inferred belief and its grounds (*premisses*) is logical; that of a caused belief and its 'grounds' (*facts*) is extra-logical. To avoid the implication that ultimate beliefs arise *in vacuo*, or through some sort of spontaneous generation, the position, which I take to be Mr. Russell's, had better be restated in the following manner: The 'grounds' of beliefs are either logical or extra-logical; logical grounds are *premisses*, extra-logical grounds are not premisses. A belief whose grounds are premisses may be called an *inference* or an inferred belief; a belief whose grounds are not premisses may be called a non-inferred belief. The relation between an "inferred" belief and its grounds (premisses) is that of "implication". These are his kinds of non-inferred beliefs, the grounds of one of these kinds are *facts*, and the relation obtaining between such non-inferred beliefs and their grounds is that of *causality;* the grounds of the other kind of non-inferred beliefs (*e.g.* "logical" propositions) are not *facts*, and the relation obtaining between them and their grounds is neither causality nor implication. The latter kind of non-inferred beliefs may be called *ultimate*.

This is what Mr. Russell says: "Psychologically, a belief may be called derivative whenever it is *caused*[2] by one or more other beliefs, or by some *fact of sense*[3] which is not simply what the belief asserts. . . . If we call a belief "logically primitive," when it is not actually arrived at by a logical

[1] A mistake that is committed, it may be mentioned, by most psychologists.

[2] Italics mine. [3] *Ibid.*

inference, then innumerable beliefs are logically primitive which psychologically are derivative. The separation of these two kinds of primitiveness is vitally important to our present discussion."[1]

From what has been said it should be evident that I am of opinion that this position is radically unsound. Granted that it is not nonsense (and I think it is) to speak of *inferred* beliefs, there is no doubt at all, I think, that it is meaningless to speak of beliefs being *caused*. Such a position involves a fundamental misconception of mental 'phenomena'. For in whatever sense the origin of *any* beliefs is "logical" or "inferential," in that sense the origin of *all* beliefs is "logical". If a "psychological" account of a belief is significant at all, it can only claim to state what in fact were the "grounds" of that belief. The point I make is that these grounds, for the believer, always or never claim to be "logical," no matter what the belief is. In a word, if *any* belief is "inferred," *all* are—*i.e. every* belief is, in the same sense, an "inference". I do not say that they are all "legitimate," or that the "grounds" of all beliefs are reproducible to the mind of the believer, much less, then, that they are always 'before' the mind of the believer.

Further, I deny that there are any ultimate *beliefs*. The *truth* of a belief as such cannot be self-evident. A *fact* may be 'immediately' apprehended; but such apprehension is not *belief;* it is *knowledge*.

Finally, Mr. Russell's division of beliefs into *caused* and *inferred* is inconsistent with his own account of *causal laws* and *causes*. "A causal law," he says (p. 213), "allows us to infer the existence of one *thing* (or *event*) from the existence of one or more others. The word 'thing' here is to be understood as only applying to particulars, *i.e.* as . . . including sense-data, with whatever is logically of the same type as sense-data." And further on (p. 220) he says: "The word 'cause,' in the scientific account of the world, belongs only to the early stages, in which small preliminary, approximate generalisations are being ascertained with a view to subsequent larger and more invariable laws. We may say, 'Arsenic causes death,' so long as we are ignorant of the precise process by which the result is brought about. But in a sufficiently advanced science, the word 'cause' will not occur in any statement of invariable laws. There is, however, a somewhat rough and loose use of the word 'cause' which may be preserved. The approximate uniformities which lead to its pre-scientific employment may turn out to

[1] P. 69.

be true in all but very rare and exceptional circumstances, perhaps in all circumstances that actually occur. In such cases it is convenient to be able to speak of the antecedent event as the 'cause' and the subsequent event as the 'effect'. In this sense, provided it is realised that the sequence is not necessary and may have exceptions, it is still possible to employ the words 'cause' and 'effect'. It is in this sense, and in this sense only, that we shall intend the words when we speak of one particular event 'causing' another particular event. . . ." These statements are not, I think, altogether unambiguous; but it at least seems clear that for Mr. Russell "causes" and "effects" are "particulars," *i.e.* either sense-data or whatever is of the same order as sense-data. As, therefore, a *belief* is not, in this sense, a "particular," it is unquestionable, I think, that Mr. Russell's contention that some beliefs are psychologically derivative is inconsistent with his own account of causality.

I now shall briefly consider doubt, expectation, and certainty. Doubt is neither mere ignorance nor mere supposition, it is, I think, denial; it is not, however, denial of the truth of a judgment, but of the conclusiveness of evidence put forward in support of a judgment. In other words, to doubt R is not to *disbelieve* or to *deny* R, nor is to assert or believe R's evidence to be inconclusive; it is simply either the non-acceptance, on the part of the doubter, of R's evidence as evidence or is an analytic statement whose import is that R's evidence is not evidence of R. In the latter, and proper sense, denial is knowledge, and not belief.

Expectation is a special kind of belief, a belief in some *future* occurrence; and as no belief is caused, mere repetition cannot be the cause of expectation. Repetition may cause revival; but revival is not belief.[1] This is why Hume's account (and Mr. Russell's so far as he follows Hume) is inadequate. Revival (if there is any such thing)

[1] Mr. Russell says, "Derivative beliefs . . . constantly arise . . . merely by association of ideas . . ." (p. 69). Now as "association" only gives rise, directly, to "revived" ideas and images, the contention made literally interpreted is that revived ideas and images as such *cause* beliefs. This is absurd, and not, I think, what Mr. Russell means. He may hold that the mere recurrence as such (*i.e.* without knowledge of its recurrence) of an idea causes belief in *that* idea. But this is not the view he has here before his mind; his position is that the ideas revived through association cause beliefs in "ideas" *other* than the "revived" ideas—*e.g.* the idea of eating in certain circumstances comes before, is "revived" in, the dog's mind, and Mr. Russell's position is that this "revived" idea *causes* the dog to have two beliefs (1) that he ate then (?), (2) that he will eat now. Are these opinions of Mr. Russell's "soft" or "hard"?

is not as such recollection; it is, in fact, quite hypothetical, and, so far as I can see, an hypothesis that has never been unambiguously described, nor one, besides, that clearly explains anything it is claimed to explain. Further, *what* is remembered is *not* what is expected—*e.g.* the child's knowledge of the fact of having eaten under circumstances that it recognises as similar to its present ones is *not* the fact it expects. I say "knowledge," because recollection *is* knowledge. What the relation of facts remembered is to other facts is another question. Here again Mr. Russell, I think, falls into error; for he regards memories as beliefs—some as "certain" beliefs. But no one *believes* what is remembered; although what is remembered may be believed to be related in some way to other facts. This, however, is another matter. I submit that Mr. Russell confuses them with each other.[1]

Next what is meant by a "certain" belief, a "certain" fact, or a fact of the highest degree of "certainty"? It is clear, I think, that what is meant by a "certain fact" (or by a "fact of the highest degree of certainty") is either a "certain" *belief* (or a *belief* of the highest degree of "certainty") or simply *knowledge* of a fact; since it is quite inappropriate to speak of certain *facts* or of certain *knowledge*. Now what is to be understood by certainty as a *qualification* of belief? My answer is that it has no meaning whatsoever, *unless* there is such a thing as degree of belief. This view is held by some philosophers (*e.g.* by Prof. J. S. Mackenzie) but what is meant is very far from clear.[2]

[1] It may be objected that what Mr. Russell *says* is that some facts of memory have the highest degree of certainty (p. 72), and *not* that some memories are certain beliefs. My reply is that neither *beliefs*, facts nor knowledge can be certain. See discussion of "certainty" that follows.

[2] Pragmatists might maintain that to *assert* a concept *is* preparedness to act upon it *as if it were a fact*. And, from this point of view, a "certain" belief would be a concept (*i.e.* a conceived fact) that was *invariably* treated as if it were true (*i.e.* representative of a *fact*) and so *always* acted upon. All other "beliefs" (*i.e.* all beliefs other than certain ones) being "asserted" provisionally and in default of better ones, in the sense that they are *used* or acted upon, but not *used* without a consciousness of risk. This may be stated more clearly. To believe *is* to assert, and to assert *is* either acting upon, or preparedness to act upon, when the opportunity arises, a conceived fact *as if it were a fact*. And from this point of view a belief or assertion may be said to be "certain" if the conceived fact acted upon without any consciousness of risk, and uncertain when there is a consciousness of risk—or, in order to avoid the imputation of interpreting belief in terms of belief (on the ground that consciousness of risk as here understood is belief), it may be maintained that degrees of "certainty" are, at bottom, degrees of utility. But how far such a position is adequate and inconsistent I do not propose to consider.

I submit that there is no such thing as varying degrees of belief. The exigencies of a situation may demand decision and action under circumstances in which the means adopted for the fulfilment of our purposes may be of doubtful efficacy; but this does not mean that we have a low degree of belief in the relevance of our undertaking. The contrary supposition involves confusion, and gives rise to the view that there are degrees of belief. The confusion consists, I think, in identifying, *e.g.*, *R doubted* with *R* "doubtfully" *asserted*, and then, confusedly, treating the R as if it were asserted with a low degree of belief, thereby overlooking the fact that doubt is either purely negative or else equivalent to denial, and so (in the latter case) is *knowledge* and not *belief* at all.

I contend, in brief, that certainty is not a qualification either of *facts* or *knowledge* or *belief*. Certainty and degrees of certainty, if they stand for anything at all, are predicates —*i.e.* something assertable, and not intrinsic properties of assertion as such.

I think that all these considerations go to show that Mr. Russell's division of "data" into "hard" and "soft" is untenable—beliefs as such are neither certain nor uncertain, and no belief is "psychologically derivative". All that Mr. Russell ought to mean when he says that *some* "data" are "soft" is that some beliefs are not *known* to be true. But then this is the case with *every* belief.[1] And this fact I think is, curiously enough, at the "back" of Mr. Russell's mind, and so really at the foundation of his division of data into "hard" and "soft". For otherwise what are his real grounds for holding that psychologically derivative "facts" (beliefs) are dubitable or uncertain and psychologically primitive "facts" (beliefs) certain or indubitable? Surely at least *part* of what he means by this is that some "facts" may be false and others (the psychologically primitive ones) are certain or indubitable in the sense, in the end, that they are *known*. And in that case his division should be into "facts" that are not known and *facts* that are known, *i.e.* into *belief* and *knowledge*. But if this is not his meaning, then all I have to say is that he has in no way justified his contention that beliefs that are caused (*i.e.* psychologically derivative "facts") are any less certain, in any important sense of certainty, than beliefs that are either not caused (*i.e.* psychologically primitive "facts" and *a priori* ultimate beliefs)[2]

[1] If R is believed, it ceases to be believed when it is verified, *i.e.* known.

[2] The relation between *a priori* "judgments" ultimate beliefs, and psychologically primitive beliefs is not clear. Where an *a priori* "judg-

or beliefs for which some "argument"[1] is adducible, *i.e.* "inferred" beliefs. For if a psychologically primitive "fact" is not a fact *known*, it is either a non-caused *belief* or an "inferred," *i.e.* "logically derivative," belief; hence in neither case is the fact believed known, *i.e.* in both cases the beliefs are "uncertain". And in what important sense has Mr. Russell shown that beliefs that are either not caused or beliefs that are "inferred" are less uncertain than caused beliefs? The fact is, I think, Mr. Russell has not seriously considered what an "inference" is. I have already pointed out that an "inference" is either a judgment or an analytic statement of an immediately apprehended relation of implication—*i.e.* it is either belief in or knowledge of something; in the former case the "evidence" is not transcended, in the latter case, as in all judgment or belief, it is. "Arguments," as ordinarily understood, cannot "prove," *i.e.* verify, a judgment or belief.

But if Mr. Russell does mean by being certain being known, then half of what he says is irrelevant and practically the whole of the remainder inconsistent—*i.e.* as far as his general position is concerned—and most of it is confusing.

Consider his meagre list of "certain" or "hard" data. These are (1) the "Laws of Logic," (2) sense-data, and whatever is of the same type or order, *i.e.* whatever is *given*, *viz.*: (*a*) certain simple temporal and spatial relations, also relations of similarity and difference, (*b*) cases of motion falling within the specious present, (*c*) some introspective facts, and (3) some facts of memory. I examine them in order—(1) Mr. Russell does not give a list of the "Laws" he has in mind. But whatever they are they must either be *believed* or known. If believed they are not certain; and on any other important sense of certainty, the "Laws of Logic" are no more certain than a great many other beliefs.

(2) Sense-data can only be certain in the sense of being known. There is no meaning in saying that sense-data as

ment" is not a mere supposition or hypothesis, it is an ultimate belief. A "psychologically primitive belief" is not a *belief* at all, or else it is a belief but not *primitive*, if by a primitive belief is meant one whose content is *given* and in no part *asserted* or *conceived*. It is only because what is "psychologically primitive" is not *belief*, but *knowledge*, that it is significant to contend that it does not stand in need, in contrast to what is "psychologically derivative," of justification. Further, an ultimate belief is not to be confounded with a so-called self-evident belief, when of the latter is meant a belief the evidence of whose truth falls within its own content, or rather is its own content. A "self-evident belief" is not a belief at all—in fact, the expression is self-contradictory.

[1] See p. 74.

such are *believed;* thus to talk of beliefs in sense-data as being certain or highly certain is simply nonsense. As such, sense-data are meaningless, *i.e.* are not facts, in the sense of being complex entities. It is clear therefore that they are not *in themselves* judged. And *if* only facts are known, it also appears that they, sense-data as such, are not known. But may be Mr. Russell simply means that their *existence* is "certain". If this is so, I submit that this can only mean that their existence is *known*. And in that case what is known is something complex. On any other interpretation, I must regard the following statement as entirely devoid of meaning, *viz.*, "The more we reflect upon these [*i.e.* sense-data and the general truths of logic], the more we realise *exactly what they are* [italics mine], and exactly what a doubt concerning them really means, the more luminously certain do they become" [p. 71]. Mr. Russell, if he is saying anything at all, goes too far when he says that reflection upon sense-data makes us realise *exactly what they are*. If Mr. Russell knows exactly what they are, it is not only a pity he has not enlightened us, but it is also a pity he should have wasted his time in devising useless and superfluous logical "constructions" to explain them.

(*a*) Only in so far as instances of similarity and difference are *known*, are these relations "certain". This is also the case with "certain" temporal relations. But it cannot be admitted that *any* spatial relations are "certain". I do not deny their "certainty" on the ground that spatial relations as they are may be different from what they *appear* to be; but because to *know* them, the point of view must also be known. As, however, Mr. Russell does contend that relations are not always what they appear to be, it is clearly inconsistent on his part to hold that any relations are "certain".

(*b*) Again if any motions are "certain," this must mean that some motions are *known*.

(*c*) Mr. Russell does not give a list of the introspective facts that he regards as certain. But it is fair to suppose that the facts he has in mind are those of "inner" sense, *viz.*, feelings such as pain, organic sensation, images, etc., etc., and *in some sense* (?) all desires. emotions, instincts, beliefs, ideas, aims, etc., etc. Mr. Russell, of course, does not trouble to explain (indeed, I think he has not bothered to find out) precisely in what sense any of these things are "certain". To reply that he simply means that they are *real* is clearly inadequate, until he explains what he means by being real.

(3) I have already pointed out that recollection or memory is not *belief* in but *knowledge* of. Mr. Russell is inconsistent, then, when he says that only some memories are certain. But if in saying that some memories are certain he means that some beliefs about some memories, *i.e.* remembered things, are certain, then, from his general standpoint, this claim is gratuitous and, from mine, it is untenable, for no belief is certain.

From this brief survey it appears that Mr. Russell's "hard data" should claim to be facts *known* and not facts *believed.* It would seem, further, that Mr. Russell is not aware of this, and that, whether he is or not, he is either not clear as to what these facts are *or* else he does not clearly define them. And, finally, he does not see that a great many other facts, excluded by him, are just as "certain," in any important sense, as his "hard data". So that, once again, there seems to be inconsistency.

Mr. Russell, I have to point out, regards the laws of logic and sense-data as the hardest of hard facts; thus, in the end, the other hard facts (*viz.* (*a*), (*b*), (*c*) and (3) above) are not really "certain". It is fair, therefore, to say that the only facts that are known, according to Mr. Russell, are sense-data and the laws of logic: everything else is, at bottom, either conjecture or supposition or belief. I submit, however, that his laws of logic are not known to apply. Now this is, in point of fact, his own view; for Mr. Russell has told us elsewhere (*Problems of Philosophy*) that every *a priori* proposition is hypothetical. He is left, therefore, with sense-data.

Now if anything of any philosophical value could be done with sense-data, Mr. Russell, above anyone else, would do it. But if anything is clear, it is clear that sense-data are not sufficient, are not adequate as foundation for any sort of superstructure that can claim any metaphysical importance. It is, I admit, a little late in the day to have to point this out; and quite astonishing that Mr. Russell should lay himself open to this sort of criticism.

Mr. Russell, like all empiricists, does not take his own position with sufficient seriousness. He tells you, in effect, that sense-data *alone* are certain facts; and in violent contradiction to this he asks you to accept a great many other statements (*viz.*, the statements constituting his position as such, statements about it, and statements about other philosophies) as true! And yet one would have thought it unnecessary to have to point out that *if* sense-data are the *only* really certain (*i.e.* certain) facts, that then nothing else is

certain. Unfortunately, although this is, in one sense, quite clear, it is also, in another sense, not clear, seeing that this statement itself claims to be true. How Mr. Russell came to overlook this is very difficult to understand.

Mr. Russell is quite right, in one sense, when he says that the more we reflect upon sense-data the more illuminating do they become. This is not, however, because, as he thinks, they are sense-data, but because reflection is illuminating. What more, in general, can Kant's Criticism claim than this? Is Philosophy anything more than "Criticism," *i.e.* anything more than illuminating reflection?[1]

To revert. It should be clear now why all Mr. Russell's constructions are abstract, and it should also be clear that they are all ideal. They are abstract because their constituent entities are sense-data, and ideal because their constituent relations are not in themselves "certain," or "certainly" relations of entities of the kind that enter into his constructions. And this is why Mr. Russell's translated propositions are not really translations at all [see p. 40].

This concludes my substantiation of objection *β*. I now proceed to substantiate objection *α*, *viz.*, That scientific propositions cannot be logically translated into propositions whose constituent concepts are abstract (translated) constructions [see pp. 34 and 40]. This, it is clear, is a general contention. And it will have been established if it can be shown that an abstract construction is either an ideal or fictional construction. Against Mr. Russell, and by way of a special objection, it is only necessary to show that *his* constructions are ideal. This I have already done.

All that is presupposed in the elaboration, or definition of a construction is, stated generally, that certain things in certain relations have certain properties which otherwise they would not have. This, in itself, is incontrovertible—*e.g.* lines related in certain ways may be said to constitute

[1] Philosophy, I may be allowed to say, is not a way of persuading ourselves or others that nothing, or next to nothing, is known; it is, if anything at all, an eye-opener, so to speak. That is to say, Philosophy deepens, and not darkens, our minds. And this is the case even if it is essentially disillusionment. Surely, Mr. Russell agrees with me? Really, we *know* a very great deal without Philosophy, and with it, properly understood, we 'discover' much more. It may be heresy, but even so I suggest that the proportion of facts *known* to facts *believed* is not by any means unfavourable to the former—indeed, I submit, that we know *more*, perhaps far more, than we believe. Anyway, if nothing else, this is a salutary protest. So much "Philosophy" seems to be little more than a heroic attempt to *speak* consistently; or else it consists in just abstracting all meaning from things, followed by a grave attempt to get most of it back "logically," *i.e.* surreptitiously.

figures of different orders having specific properties. However, a *triangle*, *e.g.*, is not a "construction"; for its constitutive entities (lines[1]) *are* related in the way that involves their having, as related, the specific properties of such a figure; whereas the constitutive entities of a "construction" are *not* related in the conceived way, but, in the case of a "real construction," *relatable* in that way—*i.e.*, a *triangle* is not a "construction" because its constitutive 'parts' (lines) are not *merely* relatable in the given way, but related in that way. In brief, a "construction" *as such* only claims to be *possible*. Strictly, then, "ideal" and "fictional" constructions are not "constructions" at all. So that if a concept is a "construction" it must be "real". And from this it should be quite clear that "translation," if it has any value at all, must claim to substitute possible concepts for concepts that are either impossible or not known to be possible. Further, if the *meaning* of the translated proposition is different from the meaning of the original (or untranslated) proposition, it must be "proved" on independent grounds—*i.e.*, its "evidence" cannot be the "evidence" of the untranslated proposition—unless it can be shown that the "evidence" of the untranslated proposition only justified that part of its meaning that is the meaning of the translated proposition. And, after all, this does constitute an independent "proof" of the translated proposition. But, be it noted, either *all* propositions that are subjected to translation are purely assertions about relations of properties or some are not; if they are, then they can only be translated into propositions that assert something other than a relation between properties; if they are not (if, that is, some propositions that are translated assert something other than a relation between properties) then, again, the propositions into which they are translated must assert something else. In either case, therefore, the "proof" of the translated proposition must be independent of that of the untranslated proposition. All this may be stated concisely as follows: A translated proposition either asserts what its corresponding untranslated proposition asserts or it does not; in the former case there has been no translation; in the latter case there has been, but then the evidence of the translated proposition must be independent of that of the untranslated proposition in the sense, at least, that their "evidence" cannot be identical. And this difference cannot be the fact of translation, since translation is not as such evidence of the truth of the translated proposition.

[1] In the end, there is no reason why the *lines* rather than the *angles* should be regarded as the constitutive entities.

To return to the main point. Abstract constructions are ideal because, for one reason, it seems true that the only ways in which sense-data are *known* to be related are by *similarity*, *difference* (perhaps quantitative as well as qualitative in both cases) and time, ways that do not seem to be "evidence" of, or to "inferentially" involve, any other properties—anyway, not when, as with Mr. Russell, metaphysics is "analysis". Another reason is that only *things* have properties, and not pure abstractions like sense-data, no matter how they be conceived as related—*e.g.*, the *whole* constituted by *lines* related in a given way is a *figure*, and as such it involves certain properties, properties that constitute its nature or make it the sort of figure it is. In other words, *only* in so far as being related in a particular way constitutes the *relata* or *terms* into *parts* of a *thing* can being related *involve properties*. Briefly, only *intrinsic* relations "carry with them" or "involve" properties—a relation is intrinsic when it is *part* of a *thing*; and *every* relation is intrinsic to some *thing*, but not to every thing. This consideration is, I think, of general importance, apart from its relevance in the present discussion. Only, therefore, when the "constitutive relations" are intrinsic to the "constitutive entities" (*e.g.* sense-data in the case of abstract constructions) of a "construction" can the former "involve" the latter having the "assigned properties". But in that case the defined whole is not a "construction," it is, on the contrary, a *thing*; for to say that the "constitutive relations" are intrinsic to the "constitutive entities" means that they *are* both *parts* of one and the same *thing*.

This concludes my substantiation of objection α, and therefore, as objection β has already been discussed, my criticism of what I take Mr. Russell's main thesis to be. There are a good many other contentions made by Mr. Russell that I should like to discuss, but I must refrain from doing so for want of space.

IV.—SPECULATIONS ON THE WORKING OF THE BRAIN.

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Philosophy presents to the experimental physiologist a curious problem. When in a strange and clumsy manner he enquires of its attitude toward the problems with which it deals he finds that there is by no means unanimity in the explanations offered. He finds, indeed, that Professor X. takes a materialistic view in the philosophic explanation—the "why"—of a series of phenomena upon which Mr. A. looks from the standpoint of the idealist. The physiologist knows that differences of opinion exist in his own subject. He thinks that these may readily occur where the data are insufficient—that they then serve as a stimulus for the accumulation of new facts and, having played their part, disappear. But philosophy (he supposes) must have its data as nearly complete as possible, and another explanation of these differences of opinion must be forthcoming. Again he knows that the influence of schools, and even personal vanity, may sway the thought of men so that criticism is blurred and some data are too much emphasised and other data too little. But in his own subject, where fortunately the burthen of schools has been a light one, he has experienced the invariable failure of bias. Therefore he hesitates to attribute all the differences of philosophy to such causes.

The problem now begins to interest him from his own standpoint. Professor X. and Mr. A. find different explanations for the same series of data. He cannot question their sincerity. Is it possible that there may exist two kinds of truth? The conclusion to which he comes—a tentative conclusion, for the problem cannot be attacked in his own manner—is that the one thinker is born to take one attitude and the other another. Their brains differ in structure, there is a corresponding difference in the functioning of the brains, and the concomitant mental phenomena are different.

In such cases there are admittedly differences in mental attitude between different individuals even where they are presented with apparently identical series of data. But each of us knows that his mental attitude may differ with regard to a specific problem at different times. Take, for example, so crude a case as " belief in ghosts ". At certain times, for instance in the broad light of day, we say with conviction that the evidence brought forward with regard to their existence is insufficient—in short, that we " do not believe in them ". But which one of us has not, upon some night when seated alone reading in a room, experienced the sudden feeling that all the powers of darkness were behind the chair ? At such times, when it requires courage to turn the head, not all the strength of our reason will drive away the dreadful something that lurks in the shadows. Then we must believe although logically we cannot believe. At one and the same time we believe and yet do not believe. Are there two kinds of ways in which the brain works, or in which its working is conditioned ?

This question at once brings us to the consideration of the problems encountered in the physiology of the central nervous system—the problems of the manner in which it works. But before attempting to trace the development and present position of this subject let me draw your attention to a point of great importance. The experimental study of the physiology of the nervous system is a purely objective science. We have nothing to do with the subjective phenomena. Consciousness and sensation accompany many if not all of the phenomena which we investigate, but our province is the examination of these phenomena from the material and physical standpoint. We must admit, however, that this restriction of the aspect from which we look upon the subject—a restriction of comparatively recent appearance—has its drawbacks, although upon the whole it is beneficial for the advance of knowledge. The psychologist and the physiologist look at different sides of the same problem. Neither can use the data of the other—the psychologist because he cannot interfere experimentally in the manner of the physiologist, and the physiologist because where he interferes experimentally he has no test for the subjective phenomena. As it were, each is blinded of an eye and the seen object is flat. Will it ever be possible to see with two eyes the object in its fullness, to perform the final synthesis ? That question lies in the future.

The physiology of the nervous system arose from vague beginnings—as did all the sciences. It was observed that

animals reacted to outside influences. The reaction might be similar to that which in man accompanies the sensation of pleasure, or to that which accompanies pain—and so on. The lower animal was therefore endowed in the thought of men with a sentient principle—the "*sensorium commune*"—just as man himself was. The seat of this was guessed to be in the brain and spinal marrow.

Again it was observed that (for instance) when the skin of an animal was stimulated a reaction indicative of pain occurred. It was guessed that this was due to a stirring up of the sensorium commune through the agency of the peripheral nerves. Perhaps this was no rude guess but a deduction from the observation that after injury to the nerves in some cases the irritation of parts of the skin in man is not felt.

At this time it was held that the movement of an animal was an index of its consciousness, of the activity of the sensorium commune. It was thought that certain nerves carried a flow of the animal spirits into the central parts, that the sensorium commune was there disturbed, and that then occurred a flow of the animal spirits in the reverse direction either in the same nerves or in other nerves. When the animal spirits arrived at the muscles they caused them to contract.

In some such manner as this the conception of "reflexion" arose. Descartes is usually credited with the invention of this sense of the word, but this meaning of the word is not given in Castelli's admirable Lexicon (1762). Robert Whytt in the middle of the eighteenth century uses the more usual term "sympathy". He would say that, if a thorn pierces the skin of the foot and that limb is moved, a sympathy exists between the skin of the foot and the muscles of the limb. This sympathy is conditioned by the activity of ingoing and out-going nerves which have a common bond in the central sensorium commune. As we would say to-day—there is a reflex path between these two parts of the body.

Now two problems were presented by this conception of the working of the nervous system—the problem of the seat of the sensorium and that of the location of the point of reflexion.

With regard to the question of the point of reflexion the older observers relied upon the anatomical evidence alone. Suppose again that a thorn pierces the skin of the foot and the limb thereupon moves, it is at anyrate possible that there occurs a direct stimulation of the muscles of the foot. Robert Whytt deduced, from the fact that muscles far removed from the seat of irritation may take part in the re-

action, that the "sympathy" between the parts of the limb is not so direct—but that it occurs through the nerves.

When the nerves are examined anatomically it is found that if they are followed up towards the spinal cord they become collected together and gathered up into ever greater bundles and that near the spinal cord they form great networks or anastomoses. It is clear that the seat of reflexion might be here and not in the spinal cord itself.

There grew up to be two schools in connexion with this problem. One said that the nerves run through the networks and come into intimate relation with each other only in the spinal cord itself. The other said that there occurred an intimate connexion of the in-going and out-going nerves in the networks outside the spinal cord. This question was settled by the experiments of Stephen Hales and Robert Whytt who showed that the phenomenon of reflexion disappears after the destruction of the spinal cord. It is now known that the in-going nerves come into close contact with the cell-bodies or the processes of the cell-bodies of the out-going nerves in the grey matter of the spinal cord as well as in other parts of the central nervous system. The actual functional distinction between in-going and out-going nerves —between sensory and motor nerves—was in part established by Sir Charles Bell, but the chief credit of this generalisation is due to Magendie.

As it were, the seat of reflexion and the sensorium commune were thus placed in the central nervous system. Even before its localisation in this region the question of the unity of the sensorium had arisen. This problem shaped itself somewhat as follows: Consciousness and reflexion are functions of the sensorium commune: is that sensorium an indivisible unit; and is it spread as it were all over the whole central nervous system, or may it be more minutely localised?

As is well known, Descartes localised the soul in the pineal gland. But the sensorium appears to have been considered as distinct from the soul—for instance, it is present in the lower animals—and it was generally supposed to be in a manner connected with the whole nervous system. Francesco Redi and Robert Boyle, however, showed that when cold-blooded animals are decapitated they may remain alive for days and exhibit reflex movements of their trunks and limbs. These experiments demonstrated that the sensorium commune was not located in the brain alone. Gilbert Blane showed that after decapitation the phenomenon of reflexion may be present both in the head and in the trunk, and he

showed also that if then the spinal cord be cut across the phenomenon may be present both in the upper and in the lower segments of the trunk. If the reflex phenomenon is associated with a sensorium commune that must therefore be capable of sub-division; and as a matter of fact Blane drew the conclusion that the automatic functions of the nervous system may take place without the intervention of the sensorium commune—without the presence of consciousness and sensation. There persisted, however, echoes of the unsolved and perhaps unsolvable problem whether or not the activities of the spinal cord are accompanied by consciousness right into the middle of last century when, under the influence of the new thought introduced by the Darwinian theory, the subject was finally abandoned as without the province of experimental science.

The localisation of the seat of reflexion was a more legitimate point for investigation than the question of the consciousness of the spinal cord; and it was found that comparatively small portions of the spinal cord may suffice for the exhibition of certain reflexes. Legallois, for instance, showed that the phenomenon of breathing—which had by that time been included amongst the automatic or reflex acts—stops when a comparatively small part of the grey matter of the upper part of the spinal cord (medulla oblongata) is destroyed. Similar restricted localisations were made for other reflex phenomena.

Gradually the conception of the reflex became crystallised in its modern form. It is recognised that the in-going nerve carries a state of disturbance from its end in the skin towards the central nervous system. There it has another ending in close connexion with some part of an out-going nerve. The disturbance can pass between these two nerves and run in the out-going nerve fibre down to a muscle or some other part of the body the activity of which it may affect. The in-going nerve and the out-going nerve form what is known as the "reflex arc," and when they work together in this manner they exhibit the reflex phenomenon.

Of course this conception is a very artificial one. There may be, and probably are, almost always more than two nerves in the arc. But it is not necessary for us here to do more than refer to this possibility.

Now this conception of the "reflex" has been used as the functional unit in speculations on the manner in which the nervous system works; and a great body of experiment has been directed to the investigation of the reflex itself. Sherrington, who has done more to increase our knowledge of

the working of the nervous system than any other living or dead investigator, has shown us how the central nervous system binds reflex with reflex and integrates the activities of the different parts of the body.

We have reached by this time such a knowledge of the properties of the reflex that we may ask the question: how we are to look upon the greatest and most complex activities of the body such as the activity of walking or progression?

At first we are inclined to deny that walking is a reflex or automatic act, and to think of it as a complex movement slowly and painfully learnt. But this is probably an incorrect attitude to take up. It is said that certain animals—such as the young chamois—are able to run almost immediately after birth; and it is also said that some birds are able to fly immediately on coming out of the egg. Recent experimental evidence has proved that the young mammal can in fact perform some of the movements of progression under conditions in which any possibility of "learning" the movements is out of the question. We must in fact admit that progression is really an automatic and reflex act, just as breathing is, although it may be to a certain extent under the control of the will.

Now if progression is really an automatic or reflex act how is it performed? The usual explanation is that it is brought about by an ordered sequence of different kinds of reflexes. The movements of the limbs and of the trunk during progression were long ago carefully studied by means of photographs taken in rapid succession during the act. As we all know, two of the chief movements of a limb in walking are those of bending and stretching—flexion and extension. When we walk, one limb is drawn up towards the body and carried forward while the other limb is in contact with the ground. While this first limb is still in the air it is again extended until it touches the ground. Shortly after it comes into contact with the ground the other limb in its turn is drawn up to the body—and so the cycle proceeds.

Until a comparatively recent date no very convincing analysis of the conditions under which these movements occur was attempted. Although the movements as such were examined it seems that it was generally supposed that they were conditioned by the action of the will, and the question was left at that. For a peculiar reflex movement which resembles progression, however, Freusberg as early as the commencement of the last quarter of the nineteenth century attempted an explanation which is prophetic of the modern views, but the subject was not followed up. Philippson at

the commencement of the present century was the first to give a more complete explanation.

Sherrington's classic investigations amongst many other things had established a general law of reflex movements—namely that when the skin of a limb is irritated that same limb is flexed and the opposite limb of the pair is extended. These movements—the "flexion-reflex" and the "extension-reflex"—are similar to the movements which occur in progression. Philippson therefore suggested that progression is composed of an alternate sequence of these reflexes. With this idea he analysed the photographic records of progression movements in terms of simple reflex movements. But the reflexes occur under the influence of irritation of the skin—"stimulation" as we term it—and the question of the conditioning stimuli for progression therefore arose. It is not possible here to go fully into the theory; but it may suffice to say that, in brief, Philippson thought that the contact of the foot upon the ground gave the effective stimulus to the skin. When one foot is pressed upon the ground it gives a stimulus which conditions the withdrawal or flexion of the limb towards the body. This movement removes the stimulus which conditions it, and the limb is again extended in a movement conditioned by the skin stimulus given to the other foot then in contact with the ground. So the rhythmic movements alternate automatically—each movement itself removing the stimulus which causes it.

Unfortunately this beautiful theory is not an adequate one. We must be quite clear about this. There can be no doubt that these skin stimuli play a part in the act of progression, but Sherrington has shown that they do not play the most important part. He demonstrated conclusively that progression may occur when the possibility of skin stimuli is excluded by experiment. His own position was similar to that of Philippson. Progression is due to the rhythmic combination of reflexes which are conditioned by stimuli self-abolished by the acts which they evoke. Where he differs is in the kind of stimuli which he supposes to condition the movements. We all know now that in the muscles there are internal sense organs which are stimulated by the movements of the muscles themselves. We speak of their activity in its psychological aspect as the "muscular sense"; and Sherrington showed that from the physiological standpoint these sense organs and their nerves act in a manner similar to the skin receptive organs. Stimulation of the ingoing nerves from a muscle gives flexion of the same limb and extension of the other limb of the pair. He therefore

found in the organs which subserve the muscular sense the site of the stimuli which condition progression. Put simply, the contraction of a muscle which extends the limb gives the stimulus for flexion—in which that muscle relaxes and thus abolishes the conditioning stimulus.

Again there can be no doubt that these inner stimuli play a part in progression, but neither do these play the chief part —for the movements of progression may occur after the elimination of all peripheral stimuli. This raises afresh the whole problem of the conditioning of progression. Without doubt it is an automatic act, but it seems not to be a reflex act in the usual sense of the term.

The point of reflexion in the central nervous system has long been termed the "centre". At the centre there is usually situated a nerve-cell. An in-going nerve-fibre impinges upon this cell and one of the structural processes of the cell is an out-going nerve-fibre.

For many years now it has been recognised that in some cases the nerve-cell may be actuated by other means than through the in-going nerve. This is the case in the respiratory centre—that centre which governs the movements of breathing. There it is known that a change in the chemical constitution of the blood acts as a stimulus to the centre. That centre may, however, also be actuated through in-going nerves. We all know the gasp which follows a sudden douche of cold water.

With the failure of stimuli of in-going nerves to serve as the prime conditions of progression we must fall back upon a similar conception to that which we use in our theory of respiration. In other words, we must look upon the centre which governs the movements of the limbs in progression as acted upon both by changes in the chemical constitution of the blood and by disturbances carried through the in-going nerves. Indeed we know that in certain conditions changes in the blood may fire off these centres, and there are many other analogies between the movements of breathing and of progression. A most striking similarity is seen in their rhythm. In both of them movements of opposite sense alternate with regularity. The cells in these centres discharge rhythmically, and this rhythm seems to be conditioned in the centre itself. Theories have been put forward to account for the manner in which the rhythm is conditioned, but these are too complex to consider here.

The position may be maintained that progression is not a complex act slowly evolved by the adding together of unitary reflexes. It may rather be held that the rhythmic

movements are the original activities of the nervous system, and that the reflexes have as it were crystallised out of them by the appearance during the course of evolution of in-going nerves which can induce small parts of the original rhythmic phenomenon—as it were, its flexion side alone or its extension side alone.

In the light of this idea we must regard the motor (efferent) nerve-cell and its out-going nerve-fibre as the chief unit in the nervous system. It may be actuated in one of three ways. In the first place by the direct action of the blood; in the second place by the action of the in-going nerve; and in the third place by the action of nerves which descend from the brain and other higher parts of the central nervous system.

This brings us at last to the brain itself, but let us first clear up our conception of the centre. We speak of centres in the nervous system because we know that small parts of it may apparently function when separated off from the rest. This localisation of function has led many to a conception of the nervous system as composed of innumerable discrete centres linked together by nerve paths. As it were, the nervous system is looked upon as composed by the adding together of otherwise independent unitary centres. This conception may be a useful one, but it is probably more correct to try to think of these centres as all mutually dependent and functioning as a whole—independent only when made so by experiment.

In the case of the brain this conception of unity is a most important one. The brain is a great centre connected chiefly with the sense organs for sight, smell, taste, and hearing. In Sherrington's words, it is the head-ganglion for the exteroceptive receptors—or for the sense organs which receive their stimuli from outside the body. Certain parts of the great brain are more intimately connected with one or other of these sense organs than are others. If the back of the brain is destroyed blindness occurs, and so on. From these and similar observations it has been supposed that there is a localisation of function in different parts of the brain. When we "see" a thing a certain part of the brain is active. When we "hear" a sound a certain other part is active—and so on. But it is probably far more correct to say that the whole brain is active both in seeing and in hearing. Suppose, for instance, that it was possible to cut off the part of the brain usually termed the centre for vision from the remainder in such a manner that both parts were left alive within the skull. We can scarcely doubt that the

visual part would still "see," but the other part connected with the production of speech would tell us that it was blind. The chief part of the brain would be mutilated and could no longer act as a whole.

A centre has in-going and out-going nerves, and so too has the brain. Toward it there run fibres from the sense organs of the head, and in addition to these there are in-going fibres which carry up from the spinal cord the impulses which subserve the sensations of touch, skin-pain, and so on; and there are yet other in-going paths.

From the brain there run out-going nerve-fibres. Of the functions of some of these we know little or nothing, but the discovery of the function of one set of them was a chief influence in establishing the theory of cerebral localisation—the theory that different parts of the great brain have different functions. It was found that when a certain area of the surface of the great brain is stimulated electrically there may be produced various movements of the body. One small part of this area gives a movement of the fingers when it is stimulated; another part gives bending of the knee—and so on.

This so-called "motor area" is the seat in the great brain of large nerve cells which send down their nerve fibres into the spinal cord. There the fibres come into contact (directly or indirectly) with the motor cells of the cord. In other words, the motor cells of the brain act through the spinal centres; and at the same time it may be pointed out that the in-going nerves of the spinal centres send up branches to the brain—so that they act upon their out-going nerves both directly in the spinal cord and indirectly through the brain. The brain may indeed be looked upon as a great centre; but the thing which it acts upon directly is not a motor organ (or "effector") like a muscle but the spinal centre, so that it acts only indirectly upon the actual muscles by influencing the activity of the spinal centre.

Now with regard to this question of localisation of function. If we examine the spinal cord we find that certain parts of it are more directly concerned with certain reflexes than are others. The segments near the lower or tail end of the cord have chiefly to do with the movements of the lower limbs; those nearer the upper end have chiefly to do with the movements of the upper limbs—and so on. Because when, in experiment, we isolate these segments it is still possible to obtain reflexes which govern limb movements, we have come to look upon such reflexes as functional units. As we saw before, this idea of unit reflexes suggested that

the greater complexes are built up of their combinations. But this is probably an incorrect idea. Normally the nervous system acts as a whole, and there is no such thing as a reflex act confined to some small part of it. This is the case probably even where the reflex evoked is a weak one and where there are no obvious movements in the other limbs and parts of the body. It has been demonstrated experimentally that a reflex act which occurs in the case of one hind limb is accompanied by movements not only of the muscles of the other hind limb but also of those of the fore limbs and of the trunk, neck, and head.

When we are investigating the properties of a single so-called unit-reflex we are much in the position of the astronomer. We must remember that it is influenced by the activity of other reflexes. The astronomer can consider theoretically the relative movements of two known masses which revolve about each other free in space. But when he investigates the motion of a specific body in the solar system he knows that the system acts as a whole, and that the movements of any one body in it are affected by the position and movements of all the other bodies. Even more than this, he realises that probably these movements are also affected by the far-off stars, although his instruments are not sufficiently delicate to detect the influence of these bodies. In short, the astronomer is dealing with the parts of a complex unit—the solar system—just as we are in the case of the nervous system.

Let us assume, then, that the nervous system is a whole; that it contains centres and may be analysed by the investigation of unit-reflexes; but that these reflexes are as it were crystallised out of the common whole, and that the whole is not composed by the building together in a more or less fortuitous manner of discrete reflexes. The system is a whole. It contains within it many centres. And of these the brain is one of the most complex.

The nervous system in some manner is connected with the phenomenon of consciousness. This connexion raises many problems which are a matter at present for interesting speculation but scarcely for experimental investigation. One may be referred to here. Without assuming any such attitude as the acceptance of the location of consciousness in space we may yet ask whether consciousness is associated with the whole nervous system.

If we assume that the nervous system acts as a whole it may be argued perhaps that it is conscious as a whole. We have, however, no means of testing this—just as we have no

means of testing whether or not any other living person besides ourself is conscious. In the latter case all we can do is to admit that "I myself" am conscious; to notice that other beings like myself react in the manners in which I react and relate experiences similar to my own; and to draw an inference that they also are conscious.

In a similar manner we may draw the inference that all nervous centres are in some manner connected with consciousness from the assumption that is forced upon us that consciousness is in some manner connected with some nervous centres. This inference may or may not be a correct one, but it is not one which can be shown to be incorrect. Take for instance the case of a man whose back is broken and yet lives—as many such cases do live. That part of the body below the broken portion of the spinal cord is regarded by us as unconscious. The upper part we believe from its behaviour to be conscious. But we have no right to deny consciousness to the lower part. All we can say is that it is deprived of all means of indicating to us that it is conscious.

Of one thing we may be sure, the consciousness of an isolated part of the nervous system is in some manner incomplete. In the above instance the upper part of the nervous system of the man is not so fully conscious as is the whole nervous system of a normal man. Many of his ordinary sensations are abolished. In a similar manner disease of a certain part of the back of the great brain cuts off the visual sensations, and the nervous system of the individual has no longer the complete consciousness of the normal man. He is blind without knowledge of his blindness. Just as the nervous system may be mutilated in such a manner as to destroy some of its reflex reactions so that it no longer acts upon its physiological side as a complete whole; so is it possible that in the same circumstances it no longer is completely conscious. But you must remember that all this is mere speculation, and as such perhaps illegitimate.

What then, from the physiological standpoint, is the function of this great centre which we call the brain? To put it briefly we may say that the action of the great brain seems to be one of control over the various movements of the body. Were the nervous system composed of the spinal cord and the little and middle brains alone its reactions would be mechanical, fatal, in a certain sense tragic. But the great brain appears to permute and combine the different components of these reactions into so many different forms that the activity of the whole system seems to lose its fatality and thus it appears to us to be almost un-predictable. The

system can react in an adequate manner to finer and more numerous circumstances and combinations of circumstances in the surroundings of the animal.

Now how are these permutations and combinations of reactions brought about? This is a question which we cannot at present answer, for our knowledge of the working of the brain is insufficient. But we can say something of the way in which the factors to be combined and permuted are presented to the brain.

The in-going nerve from the skin sets off a specific reflex reaction as regards the spinal cord, but at the same time it sends up impulses to the brain. We may say that these impulses act there upon a central mechanism which is originally of a certain structure and has previously reacted to many other different combinations of in-going nerve impulses. This mechanism then reacts and sets off its proper out-going nerves which conduct down to the spinal cord and in their action modify or replace the simpler reflex activity. But in its activity here the brain is acting as a reflex centre which is only more complex than the centres in the spinal cord. Its action is fatal, although its fates are not three in number but innumerable.

Now you see the point to which we have been advancing. It has been demonstrated that the spinal centre (or at any rate some spinal centres) are actuated not only by in-going nerves but also directly by the action of the changes in chemical constitution which take place in the blood. Some movements which seem thus to be conditioned may appear "spontaneously" when there is no apparent change in the external surroundings of the animal.

We look upon the great brain as a nervous centre. *May it too be actuated not only by in-going nerves but also by the direct action of changes in the blood?* There is much to be said in support of this view. We know that certain drugs which are carried in the blood to the brain may influence its activity. May not less gross blood changes play a normal part in the activity of the brain?

For myself I would say that this probably is the case and that changes in the activity of the brain (paralleled by changes in consciousness) are brought about by physical changes which may either be reflex or central in origin.

This idea introduces us to some speculations of interest.

We come back, for instance, to the problems with which we started. Two men may take radically different standpoints upon data apparently similar. But these data, while in themselves the same, may have different values to the

two—values which differ because the nervous systems differ in their workings and thus are differently affected by the same data. The nervous systems may differ in part organically; the two hypothetical philosophers are born with cerebral mechanisms of different kinds. In part the nervous systems may also differ because they have been subjected to different educations—that is to say that they have been subjected to different reflex influences. On such lines some of the differences in thought between individuals may perhaps be explained.

But it is within our own individual experiences that certain stimuli may at different times give us different kinds of thought. Think of the wide star-lit sky of a dark and cloudless night. The visual images which we receive may call up thoughts of the formation of the universe which we know; the distribution of the stars in space; their different distances from us. Or they may call up other thoughts and we may delight ourselves with the tracing out of the constellations, then to pass to the remembrance of the old legends with which their names are associated. Or we may have quite other thoughts and feelings, the feeling of the beauty of it all. Here external stimuli which are similar and act upon a mechanism fundamentally the same may yet at different times affect our consciousness in different manners —perhaps because of small differences in its state of activity at these different times.

And yet again, certain stimuli—visual images—may at first convey to us a clear meaning which on further analysis seems to be elusive. Take for instance the expression "Will to Power". That seems to convey a very clear meaning which is hard to come by when the sense of the individual words is examined. Or again we read in the paper to-day "The Belgians have crowned the world's admiration" [*Sunday Observer*, 18th Oct., 1914]. The meaning of this is quite clear, but the wording is obscure. We say that the writer has not clearly expressed the thought which he wishes to convey. But the thing of interest is that when first we read the sentence the meaning is clear. It is only in a later analysis of the words that obscurity is seen. And if we turn to certain poets this sort of clearness masked in obscurity is often encountered. Many better instances could probably be found, but at the moment there occur to me George Meredith's lines :—

Master the blood, nor read by chills,
Earth admonishes: Hast thou ploughed,
Sown, reaped, harvested grain for the mills,
Thou hast the light over shadow of cloud.
Steadily eyeing, before that wail
Animal-infant, thy mind began,
Momently nearer me: should sight fail,
Plod in the track of the husbandman.

GEORGE MEREDITH, *A Reading of Earth.*

Here the meaning leaps at you and appears to transcend the words in which it is framed.

In such instances the written word—the external stimulus—has an effect upon our consciousness which appears not to be mediated through the reflex mechanism—the mechanism of logic. Can it be that our consciousness is affected in two manners; by emotion and by logic; poetry and science?

And here we return to those curious conflicts of knowing which we all experience. Our knowledge at times of the powers of darkness is as strong as our knowledge at other times that these do not exist. Even within a short period of time we may experience these two antagonistic states of knowing so that we may almost say that at one and the same time we know that a thing does and that it does not exist. Is it not easiest to assume for such phenomena that the effective mechanism of the brain can be actuated in two different manners—from two different sides?

And letting our minds run still further afield in this line of thought, what about the phenomenon of memory? Consider for a moment. You may be following this argument or you may have allowed your mind to wander off in some fresh direction. In neither case is it possible for you to recall an event which for the moment has no connexion with the matter with which you are occupied. Let me give you some little stimulus—the word "*field*"—and as it were a new chain of thought is started and you may recall events or places or persons which you may think that you have long forgot. From the functional standpoint it is hard to suppose other than that the chain of thought is paralleled by an ordered series of functional (that is, physico-chemical) changes which follow upon the primary stimulus and are what they are as a resultant of the factors which have conditioned previous activities of the same material mechanisms. In this case the chain is set agoing by the little redistribution of energy on the part of the sound waves which are associated with the saying of the word "field". On the starting of the chain may not the inner stimuli which play in the brain (as we have suggested) keep it up?

But a curious phenomenon of memory is its apparent "spontaneous" origin in some cases. Before we fall into sleep at night there is often a wild riot of thought, and events long forgotten may refresh themselves in our consciousness. In such circumstances the ordinary external stimuli of the working day are in large measure excluded, and our hypothetical internal stimulation mediated through the changes in chemical constitution of the blood may well play a more important part in the activation of the brain. They have the field to themselves. It may be suggested that such spontaneous memories may be paralleled by functional changes conditioned by the inner stimuli which may play upon the brain.

Poetry and logic! Central stimulation and reflex stimulation! Is not life a continual struggle between the two? The child forgets the glorious palaces and the princess of the crystal mountain when he goes to school and is there drilled in thought—drilled reflexly. But he makes other dreams and creates other heroines although this dreadful prison of logic and convention may keep them chained within his own kingdom. And later, when we are conquered by the orderly processes of logical thought upon which our living depends, haply we may still dream dreams; and the least fortunate of us may get his dreams from others, reflexly it is true and through the written word—but dreams none the less.

If it be held that thought upon the one hand may be ordered more or less reflexly by a drilled logical and formal mechanism while upon the other hand it may be conditioned more "spontaneously" (that is, by central or inner stimulation) in a mechanism less inexorably knit together it might be supposed that in the experimental sciences the former method held sway while the latter was left to the poet.

This seems to me, however, not to be the case.

When we write a paper in which the results of experiment are described it is written perhaps in part to tidy up the loose ends of the line of research at which we are working. But chiefly it is written to explain to others (we pretend) the data which we have obtained and the conclusions at which we have arrived. The written words of our paper can influence others only through the reflex mechanism and the logical side of their minds. Therefore we marshal our facts and our experimental results in a logical sequence. "Having found that (so-and-so)" "it next became necessary to examine (this or that)"—and so on. In much of our research the order of experiment is that actually followed in

the writing of the paper. But in some cases the later fact is first as it were jumped at and the preceding facts then found and filled in. Yet when the paper is written the more logical order of arranging the facts is used. This might be considered an insincere and illegitimate proceeding, but it is not so. It must be remembered that the experiments are done for the pleasure of the investigator, for the satisfaction of his curiosity. But the results are written for the satisfaction of the reasoning of others.

This logical form in description, which is as it were in some cases historically untrue, tends to make us think that in the case of others the research is performed in the same logical sequence and that the final result follows naturally and inevitably from the preliminary results. In some cases this is of course what actually does take place in the course of the research itself. The research then has a sort of reflex nature. Perhaps the original problem may even be suggested by another. The line of research is seen to be spread out. The final result may almost be predicted. In such instances the whole thing is mechanical. It calls for little but technical originality. Much research is done in this way.

But the great results seem often to arise in another manner. Which of us has not experienced the sudden "idea" in surroundings perhaps most incongruous? At the billiard table, on the golf links, when reading a novel, the idea suddenly springs at us. Does it work? This must be tested, and the experiments are performed—finally to be presented in the historically inaccurate but necessary logical order so that the conclusion seems to follow from the line of research and to be conditioned by it. Darwin's work is surely a classical example of this. In such cases the central mechanism has, it is true, been constantly disciplined by logical thought—reflexly. But suddenly the central factors condition the new combination, the new hypothesis; as it were spontaneously.

Then there occurs the war of the two conditions of central functioning. The dream is disciplined by the logic, and logic wins the day in the final presentation.

It must not, however, be supposed that, even if this idea of the central actuation of the nervous mechanism be so important as has been here assumed, there is a strict demarcation between the two manners of central stimulation. Rather it had better be assumed that in all central activity there are the two factors, but that sometimes one and sometimes the other is the stronger.

When we look out upon the nations we may seem to find

indications of the predominance of one form of thought or the other in this nation or in that. In Germany there are many fine and original minds, but very much of the research done is mechanical—the research of the drill sergeant. In France there is perhaps upon the whole too little of the discipline of experiment, but thought effervesces. It is unnecessary, and perhaps at present unwise, to follow such speculations further.

And now at last to the end. I have tried here to let my thought travel unfettered, and have said much of rashness in this riot of speculation. Will you forgive me for its inexactness, the only excuse is the satisfaction of curiosity in following out a line of thought. Whether or not the position can really be held I cannot at present judge.

But in conclusion, and for the sake of consistency, it may be said that if this speculation has some truth in it there are thoughts above logic—thoughts to be clothed only in the language of imagination. And so, following this right to the end, it may perhaps express the idea if we say that the functional activity of the brain which you investigate from another side is to be looked upon not as a clear mountain stream, complex yet mechanical in its conditions down from the hard rocks of the parent mountain to the nirvana of the sea. Rather as a pool in an enchanted wood blown upon and rippled by the winds of heaven and so far understandable, but ever and anon stirred from the depths as if some mythical beast turned in its sleep and sent up iridescent bubbles to compete with the ripples. And the dragon a blood-dragon which we must strive to capture for its secret, a secret which may give us the fairy wish.

V.—DISCUSSIONS.

THE PHILOSOPHICAL BASIS OF THE *A FORTIORI*.

In the inference

A is greater than B, B is greater than C, therefore A is greater than C . . . (1)

"we see *directly*," affirms Dr. Mercier, "that the conclusion is valid,"[1] and (again directly) that in other inferences superficially of the same type, analogous conclusions are not valid—his point being that the validity and the invalidity alike are in all such cases *directly* seen.

Now the soundness of this contention cannot be tested until we determine what is meant here by "directly". If, *e.g.*, I were to say that increased illumination causes pupil contraction directly, Dr. Mercier would reply that while that might be true for the layman, the physiologist must regard the effect as indirectly brought about through nervous process—as indirect, *i.e.*, compared with the "direct" action of light on a camera plate or on selenium.[2] Similarly in (1), what appears to be at first sight a direct perception of a logical necessity is, for the psychologist and the logician, in reality an indirect process; the truth being that what we "see directly" forms, once early infancy is outgrown, an extremely minute element of experience. Certainly no inferred conclusion truly such—no "therefore"—can ever be seen "directly"—"*i.e.*, from the premisses as they are stated, without praying in aid a principium from outside"; and in the instance cited, Dr. Mercier himself shows this to be the case; for we find (p. 85) underlying the *a fortiori* the two general principles of substitution and implication—with (more remotely) the purpose of the argument; but none of these are within the premisses taken strictly in themselves.

This important qualification of his original contention appears more plainly in Dr. Mercier's contrasted instance (p. 89) of cheating. Here the premisses "give no warrant for substituting ' and

[1] MIND, January, 1916, p. 83.

[2] It is of course a question whether we really ever have absolutely direct physical effects—the progress of science depending largely on the resolution of reactions apparently direct, into indirect; and the causal regression being in theory infinite, no limit can be placed in advance upon the number of possible intermediate changes; *cf.* Dr. Bosanquet, MIND, October, 1915, p. 97.

"reveal no relation between A and C"; the obvious implication being that in (1) they do (taken strictly in themselves) give such a warrant and reveal such required relation. But this surely is plainly not the case. From the judgments—A is greater than B, and B is greater than C,[1] "as they are stated," we can get only—A is greater than B, and B is greater than C; this is so in the early stages of human intelligence, and presumably also in animals; and before we can obtain from them any further knowledge—before even these judgments can become premisses—we must become cognisant (*a*) of A, B and C as common elements in a unified system, and (*b*) (to some extent at least) of the general nature of the system itself—of the characteristic relations which permeate and control it;[2] but such necessary knowledge cannot be obtained "from the premisses as they are stated". It is not sufficient, that is, to say that A, B and C may be taken to be "symbols standing for any magnitudes whatever" (p. 84); we must say further that A, B and C must all denote magnitudes of some one quality, which again can vary by degrees; some common character must be present in all the terms before they can enter into the inference.[3] And if it be said that A, B and C need be nothing more than pure magnitudes, this merely means that they may express degrees of any such qualities indifferently; the idea of abstract magnitude, further, is difficult to form—it certainly is not "seen directly". In any case, the original premisses are transformed by receiving, either implicitly or explicitly, much wider significance. If implicitly, we must presuppose our condition, and the inference, properly expressed, becomes—

(A, B and C being elements in some magnitude system, then)
if A is greater than B, etc.;—
or if explicitly, we get
If A, a magnitude of a quality a, is greater than
B, another magnitude of a, etc.;—

in both cases alike we must fall back on a universal;[4] *i.e.*, in thus taking A, B and C as being within the magnitude system, Dr. Mercier must either bring to view an essential presupposition which the form of his original premisses conceals, or he must explicitly alter these premisses by making them more definite; in either case, he must go beyond mere "A is greater than B and B is greater than C".[5]

[1] I will admit (for the argument's sake) that these truths "as stated" can be seen "directly".

[2] Or (Dr. Mercier) "reveal (some) relation between A and C".

[3] If, *e.g.*, A is greater than B (in area) and B is greater than C (in weight) obviously we cannot say therefore A is greater than C.

[4] For the distinction between the universal, and the universal judgment, see below.

[5] If we feel we must still call the inference "direct," we can of course say that thought (owing to the immanent universal) is direct, but only as we may say that light acts on the pupil (owing to the nervous system) directly; the thought-reflex is analogous to the organic.

Any theory indeed of absolutely "direct" perception of inferred conclusions really contradicts the true nature of knowledge, and is merely a survival of those musty superstitions of "innate ideas" and the intuitive knowledge of "necessary" truths which to-day are usually confined to moral issues, "value-judgments" and doubtful theology. It makes, in short, a miracle of knowledge—analogous to the creation *de novo* of organic species—instead of regarding its growth as an ordered development through proper means; and indeed, Dr. Mercier himself, after asserting the "direct" consciousness of these conclusions, goes on to cite as their real foundation the principles of substitution and of implication; but this at once raises the fundamental questions—what ultimately justifies substitution, and what is the ultimate basis of implication? When, and why, can we truly assert or assume that A, B and C (*a*) imply each other, (*b*) in such a way that we can substitute one for the other?

It is possible, of course, to content ourselves with the mere reiteration of these underlying principles; but if we choose to go further, I think we can find their ultimate common basis only in the principle of the universal and its active function in all thought. Dr. Mercier's attitude to the universal is puzzling, and seems due to a failure to distinguish between universals, as such, and (*a*) universal judgments,[1] (*b*) the merely general. The universal itself is of course altogether different from the universal judgment; it is operative in all judgments alike (including singular and particular) and alike in all modes of inference; as to generality, the mere mention of the point is here sufficient.

If then, in saying that in A is greater than B, etc., "we see (the conclusion) directly, not indirectly through a universal" (p. 83), Dr. Mercier means "not indirectly through a universal judgment," I think his contention is correct; but if, on the contrary, he means "not indirectly through a universal," or, "through the principle or operation of the universal," he is (in my opinion) fundamentally wrong. It would, I am well aware, require at least one volume of MIND to support this view; and fortunately he makes such a task unnecessary by asserting that

(*a*) "an individual and a universal are antithetic. . . . An individual that, *qua* individual, is also universal, is a contradiction in terms," and

(*b*) "A universal, *qua* universal, can enter into only one relation, that of subsumption;" (p. 90).

(*a*) Here I think we may appeal to facts. The sole antithesis to the universal[2] is not the individual, but that absolute characterless homogeneity[3] to which, *e.g.*, Spencerian evolution pointed

[1] *Cf*, *e.g.*, the "St. Paul's" inference (p. 90).

[2] To the universal, not to the universal judgment.

[3] To which "abstract infinite Time and Space" approximate when we take them as devoid of all their concrete contents.

back. Consider the usual instance of "individual"—a human being—a person.[1] If we repudiate any "atomic" conception (as I presume Dr. Mercier would do) a person, obviously a complex entity, is however neither a mere group, nor a totality, nor a congeries, of its attributes, but is rather essentially a system which must be to a certain degree harmonised and self-consistent.[2] The point here, it must be noticed, is not mere complexity number and diversity of attributes, but the organised subordination of these into a systematic whole ; apart from this, as we often say, a person has little individuality ;[3] and in general anything we call "individual" is seen on examination to have system or organisation,—in other words diversity under unity—difference under identity. The "individual" in short is what it is etymologically—the indivisible ; but indivisible at once implies diversity (you cannot divide the absolutely homogeneous) overcome by some unity which renders any real division impossible.

I think this expresses what Dr. Mercier means by "individual and universal are antithetic"—that the individual, just so far as, and the more, it is an individual, is never the general, never merely an instance of a type, a member of a class ; the more individuality a man has, the less he belongs to his party, his social grade, even his nation or his century ;[4] and we can class any individual only by depriving it more and more of its characteristic qualities. Why then, it may be asked, if "general" and "individual" thus indicate the real antithesis, why confuse issues by introducing "universal" ? Two reasons suggest themselves :—

α. The term "individual," as commonly used, conveys a meaning approaching and suggesting not uniqueness but generality ; our "individual" is a member of society, a mere unit in the greater state ; or if not that, then the term becomes merely designative, like a proper name ; the "individual" = "the individual in question," important for some given issue—A or B or C—but apart from that, in himself alone a negligible unit ; like an obscure plaintiff raised to importance in a test case.

β. The other reason for using "universal" leads to the consideration of—

[1] The etymology of "person" seems rather suggestive in this connexion

[2] Otherwise we have a person who is not (*e.g.* morally and legally) a person—minors, lunatics, "multiple" personalities. But perhaps our principle is easier to grasp in the case of the bodily organism. It should perhaps be added that "system" does not necessarily mean mere mechanism and rigidity, which are merely its subordinate manifestations ; we may instance again a well-organised business or university.

[3] The sometimes puzzling influence in politics and the state of "plain dull" men, and the ineffectiveness of the "brilliant," illustrate this. We may think of the late W. H. Smith and the Duke of Devonshire.

[4] At the same time, in so far as the individual arises only under its adequate conditions, time and place must be taken into account ; and the immortals remain Greek, or English, or German.

(*b*) "A universal, *qua* universal, can enter into only one relation, that of subsumption."

This, to begin with, is true of the general, but only of the general, whose underlying principle is subsumption; but it is true neither (as with Dr. Mercier) of the individual, nor (as against him) of the universal; because the individual, rightly viewed and understood, is not antithetic to but is one in nature with the universal; why then, again, at all distinguish between them?

Individual and universal, argues Dr. Mercier, are antithetic, and the universal enters into the relation of subsumption; whence it would follow that the individual cannot enter into this relation. This again is true; but none the less it leaves unexpressed what is for philosophy (including logic) the most important aspect of the individual's nature. For, in so far as the individual cannot (as Dr. Mercier insists) be subsumed, just in so far is it unique; it cannot be classed just so far as it has uniqueness and stands alone —"in a class by itself" as we say. But does this character belong, except relatively, to any individual we ever experience? Dr. Mercier, I am sure, would agree that it does not—that no actual individual is altogether unique, although to be truly individual it should be unique and unclassifiable. Our actual practical "individuals" then claim, and exhibit in part, a character they do not possess in its purity. But there is more than this; not only is no individual unique, but in order to express fully such individuality as it has, it must actually recognise its own limitations—must merge its individuality in some other; it is no paradox to say that to express its individuality it must really sacrifice it.[1] Immure the most striking personality on a desert island, and his individuality is cut away at its root; he must have, *i.e.*, his proper sphere in which, by co-operation with other individualities (each of which again is in isolation helpless) he can express and develop his own. It is this fundamental aspect of the individual which is expressed by "universal"; in practice, we use "individual" (logically enough) to single out from the environment —to distinguish and isolate—thus ignoring the fact that apart from his environment the individual is helpless. "Universal" gives this neglected truth (necessary always for philosophy, but only on occasion for practice) its due prominence; it recognises that in so far as the individual cannot be classed, it is a unique system—is (though only in part) a universal; but on the other hand, in so far as it is never truly unique, but requires for its proper expression a fuller organisation environment and system beyond itself, it is not a universal, but after all only an element within some wider individual;[2] which again (continuing to apply

[1] "He that loseth his life . . ."

[2] *E.g.* family, party, church, state.

our principle) itself merges in one still wider—the only true universal being the Universe.[1]

Thus the universal and the general are related to the individual in diametrically opposite ways; to generalise the individual is to degrade it—to make it wider, but shallower; while to take it up into the universal is to make it at once wider and deeper; and so far from subsumption being the only relation possible to the universal, the contrary is true; for you cannot subsume the unique; and the more an entity approaches uniqueness, the less possible does subsumption become.

If then we see conclusions "directly," this is only through the operation (implicit or explicit) of the universal; which Dr. Mercier, however, appears not to distinguish from the general; but to apply these principles in detail would necessitate writing an "Old Logic".

J. E. TURNER.

[1] "Flower in the crannied wall" is almost too well known to need quoting but the whole principle lies in it.

CAUSALITY AND IMPLICATION.

Dr. Bosanquet confines his elucidation of Dr. McTaggart to two points. I will for the sake of brevity confine mine to one of these, *viz.*, whether, and in what sense, 'Causality' is reciprocal. The general question of the validity of Dr. McTaggart's theory of causation I have examined in the *Journal of Mental Science* for last January.

Dr. Bosanquet states his question in two ways: first, whether, and in what sense, Causality is reciprocal; and second, whether Causal Implication is necessarily reciprocal. Whether Dr. Bosanquet takes these two questions to be one and the same I do not know: to me they seem very different, and as the one that he explicitly undertakes to examine is the latter, to this I will confine myself. Dr. Bosanquet holds 'that all Implication as such is reciprocal,' and so do I; but I am not at all sure that we both mean the same thing by implication or by reciprocal. My view is that implication is necessarily reciprocal because implication is a relation, and every relation is reciprocal, or has a reciprocal relation. This reciprocal relation is expressed by transposing the terms of the relation, and changing the verb expressing the relation from active to passive, or *vice versa*. If A loves B, then is implied the reciprocal relation that B is loved by A. If A is adhered to by B, then is implied the reciprocal relation that B adheres to A. If A implies B, then B, reciprocally, is implied by A. This is not Dr. Bosanquet's view of either implication or reciprocity. He says, 'If A coheres with, or is linked to B, B, it would seem, must be linked to or cohere with A'. It happens that both these relations can be expressed by the same voice of the verb as their reciprocals, but this is very unusual. Dr. Bosanquet takes them as if they were the rule, and the rule without any exception. If A is never found without B, he 'finds it all but impossible to conceive B, this identical B, a universal characteristic, as not possessing the corresponding feature, coupling, or point of attachment, which carries with it the presence of A'. What Dr. Bosanquet finds all but impossible seems to me sufficiently easy, unless there is some difficulty connected with 'universal characteristic,' a term of which the meaning, in this context, escapes me. If A (say treacle) is never found without B (stickiness) is it difficult to conceive B, this identical B, carrying with it the presence of jam, or honey, or glue, or syrup, and the absence of treacle? Or if the universal characteristic B is not a quality but a material thing, the difficulty is no greater. If A (a whale) is never found

without B (a remora) attached to it, still, it is very easy to conceive a remora not attached to a whale. There are many remoras attached to sharks, porpoises, and dolphins; and some remoras are swimming free without any coupling or point of attachment to a whale. 'How,' asks Dr. Bosanquet, 'can an element [a remora for instance] united to A [a whale] without exception where A exists, cut itself loose as a whole and go about independently?' Easily enough if there are half a dozen remoras attached to A, and still A may never be without a remora where A exists. But then, Dr. Bosanquet might say, B does not cut itself loose as a whole. I agree; but there is no need in the original supposition (A is never found without B) for B to be indivisible. It may cut itself loose piecemeal, and yet never leave A without B. In the following sentence Dr. Bosanquet assures us that, 'If our insight extends to the contrary alternative, or negative instance, and we are able to say *in addition* (my italics) "if A is not, B is not," then we are assured that B implies A, and that the relation is reciprocal'. No doubt we are, but this is not a matter of insight: it is a matter of experience—of fact. To infer deductively from 'A is never without B' to 'B is never without A' is to convert an affirmative proposition simply, and I must confess astonishment at a logician of Dr. Bosanquet's eminence falling into such a very elementary fallacy. Surely he has not been misled by the quasi-negative, 'never without,' into imagining that he was converting a negative proposition?

'Concave implies convex,' says Dr. Bosanquet. His allusion, in the previous sentence, to insight and inference leads us to suppose that the illustrative instances which follow, of which 'concave implies convex' is one, are to be regarded as inferences or deductions. It is clear to me that they are not deductions; and if they are inductions, they are not true. 'Concave implies convex': I deny it. In the ordinary and natural meaning of 'concave,' 'implies,' and 'convex,' this is the very reverse of the truth. In ordinary language concave means the opposite of convex, and cannot possibly imply its opposite unless by 'imply the opposite' we mean 'arouses the thought of the opposite' which is not a usual, nor, I submit, a justifiable meaning to read into 'implies'. Not concave implies, says Dr. Bosanquet, not convex. I assert, on the contrary, that not concave cannot imply not convex. It may imply convex or it may imply plane, and it must imply one or the other; but it cannot imply not convex. Clearly, he is using the word 'implies' in some new and original meaning. What is this meaning? Fortunately he gives us a definition. 'Implication invariably means a character attaching to a definite complex of terms and relations, such that some element within it can be distinctly seen, by being what it is, to make inevitable the presence of a certain other element in a certain relation to it.' This is very widely different from Dr. McTaggart's definition of implication, and I do not see how any discussion can possibly be useful or profitable when the cardi-

nal term in it is used in totally different senses by the two chief disputants; but taking the definition for what it is worth, as Dr. Bosanquet's definition, let us apply it to his instance. Is concave a complex of terms and relations? To me it seems a single elementary term. Does it make inevitable the presence of convex? To me it seems to make inevitable the absence of convex. I do not know, but as a rather wild conjecture I surmise that when Dr. Bosanquet speaks of a complex of terms and relations, he means an actually existing thing. It is a queer title for an existing thing, and it is, I admit, a daring surmise, but in no other way can I find any approach to sense in Dr. Bosanquet's statement. I surmise, however, that by a complex of terms and relations, he means, in this case, a plate of approximately uniform thickness; and no doubt, such a plate, if concave on one side, must be convex on the other; but did Dr. Bosanquet never hear of a meniscus? or of a plano-concave lens? Or does he mean the concavity of a surface necessarily implies the convexity of the surface of air in contact with the concavity? Then how if the concave surface is the interior of an exhausted receiver? It seems to me that in every instance except that of a plate, which is a purely accidental or exceptional instance, concave does not imply convex; concavity does not imply convexity, but is the very reverse and opposite of convexity. The same reasoning holds good, *mutatis mutandis*, of Dr. Bosanquet's other examples. Stoppage of the heart for good implies death, no doubt; but non-stoppage of the heart does not necessarily imply the absence of death. If we take the heart out of a frog, the frog dies; but the heart can be kept going for many hours.

The discussion of the reciprocal determination or non-determination of cause and effect hangs upon a barefaced and transparent equivocation in the word determination. In some cases, drinking alcohol determines drunkenness; that is to say, it causes drunkenness. In the same cases, drunkenness determines having drunk alcohol; that is to say, it is proof that alcohol has been drunk. But drinking alcohol is not proof of drunkenness, and drunkenness is not the cause of drinking alcohol. If you like to include the two words proof and cause in the meaning of the word determination, then no doubt drinking alcohol does determine drunkenness, and drunkenness does determine drinking alcohol; but what right have Dr. McTaggart and Dr. Bosanquet thus to degrade and corrupt the English language? Is it come to this, that philosophers have stooped to the occupation of the smasher, and debase the current verbal coin of the realm, offering us coloured German silver in exchange for sterling gold? The instance of drinking alcohol and drunkenness is given as an instance of reciprocal determination. It is manifest that in any proper use of the words it is no such thing. If drinking determines drunkenness, then the true reciprocal is that drunkenness is determined by drinking. If drunkenness determines drinking, then the true reciprocal is that

drinking is determined by drunkenness; and this is true in both cases whatever meanings we attach to determine, and whether we mean by it the same thing in each pair of cases or a different thing. But we must keep to the same meaning in both cases of the same pair, or we are talking utter nonsense.

Dr. McTaggart's doctrine and Dr. Bosanquet's criticism of it become intelligible only if we take 'cause,' 'imply,' 'prove,' and 'determine' sometimes all to mean the same thing; sometimes all to mean different things; and only if we vary the meanings capriciously from moment to moment, according to fancy.

'The whole statement,' says Dr. Bosanquet, 'to my mind, is thrown out of gear by looking at experience under the aspect of repeated conjunctions of occurrences.' The whole statement to my mind is thrown out of gear by using words in any sense that at the moment seems convenient, and changing the sense whenever the words are used again.

CHAS. A. MERCIER.

VI.—CRITICAL NOTICES.

Collected Logical Works. Vol. II. *Laws of Thought.* GEORGE BOOLE. Open Court Company. Edited by P. E. B. JOURDAIN. Pp. xvi, 448.

THIS work, which has been very rare and consequently but little read, is now being published by the Open Court Company under the editorship of Mr. Jourdain. At present only the second volume has appeared; but this contains Boole's *magnum opus—The Laws of Thought*—and we are promised the first volume with Mr. Jourdain's introduction shortly.

I have no hesitation in saying that this book is one of the most fascinating that I have ever read. It is a delight from beginning to end; its long period of obscurity has been a real misfortune to logic; and the Open Court Company is to be congratulated on making it accessible and putting the editorship into the hands of one whose name is a sufficient guarantee of his eminent capacity.

For a work of this kind the present volume is creditably free from misprints; but I have noticed some, and there are probably others which I have overlooked. On page 151 we read of 'the constituents in the development of y' where y is clearly a misprint for V. In the second formula on page 286 Prob. c in the denominator should be Prob. C. In the last two equations on page 302 a symbol z occurs where, to be consistent with equation (3) on the same page, w should appear. There is a curious error on page 317. Boole is trying to find the major numerical limits of the expression $xy + x(1 - y)z$. He proves that these must be $n(x)$ and $n(y) + n(z)$ and then adds 'of these two values the last, supposing it to be less than $n(1)$, must be taken'. This must be a mistake. We must take whichever is the less of the two expressions $n(x)$ or $n(y) + n(z)$; and the fact that $n(y) + n(z) < n(1)$ does not involve that $n(y) + n(z) < n(x)$.

It is indeed easy to make up an example when this is false. Suppose that $n(1)$ is the number of male human beings, that $n(x)$ is the number of German men, $n(y)$ the number of red-haired men, and $n(z)$ the number of soldiers. Then it is tolerably obvious (*a*) that $n(y) + n(z) < n(1)$, and yet (*b*) that $n(x) < n(y) + n(z)$. Probably the true explanation of the passage is that *last* is a misprint for *least*, which saves Boole's logic at the expense of his

grammar.[1] On the top of page 323 we get the equation Min. lim. $D \gtrless n(1)$. It seems clear that this is a misprint for Min. lim. $n(D) \gtrless 0$, an equation which actually appears on the middle of the previous page.

Whilst I regard Boole's work as a great intellectual achievement, I think it is stronger mathematically than philosophically. Perhaps the most important part of it is the sketch of a general method of dealing with problems in probability. In many respects Boole's system has undoubtedly been surpassed by later logical writings such as those of Frege, Peano, Russell, and Whitehead, etc. My best plan will be to begin with a summary of the *Laws of Thought*, and then to mention some points where I disagree with it and to compare its merits and defects with those of some outstanding modern system of symbolic logic such as *Principia Mathematica*.

Logic, according to Boole, deals with the laws of our mental operations. These are determined by observation, yet our knowledge of these laws differs in kind from the knowledge of the laws of nature which we reach by observation and induction. The latter knowledge is only probable, and its probability continually increases as we become acquainted with more and more numerous favourable instances. But when we observe the operations of our own minds we become aware of a general law in the particular cases, and, once we clearly perceive it, no amount of additional instances will add to the strength of our belief. Boole does not call such knowledge *à priori*, because it does depend in a certain way on experience; but it is undoubtedly *à priori* in the sense of Kant or Meinong and in the only reasonable sense of the word. A knowledge of these laws will enable us to deal (*a*) with relations between things, and (*b*) with relations between facts or propositions. We shall thus be able to give a theoretical solution of the most general problems in ordinary logic and in probability, and we may hope in the end to obtain some light on the constitution of the human mind.

The most general problem of logic is: Given any number of relations between any number of terms $x, y, z \ldots$ to deduce all that we can as to the relations between any other set of terms $u, v, w \ldots$ which may or may not be wholly or partly identical with the first set. $x, y, z \ldots u, v, w \ldots$ may here be either simple or complex. The most general problem of probability is: Given the probabilities of any set of events subject to any set of conditions to determine those of any other set of events subject to any other set of conditions.

That logical operations can be represented by symbols is a fact which may be suspected when we recognise that all language is symbolism. That these symbols will obey laws very similar to those of algebraic symbols is a further fact which may be discovered either by considering the implications of language or by appealing

[1] I owe this conjectural emendation to Prof. Taylor.

directly to our mental operations. Thus, if single letters like and y stand for the class of objects to which the *name* x or the *name* y is applicable; if the combination xy stands for the class of objects to which the *name* x and the *name* y are both applicable; and if the symbol $x + y$ stands for the group of objects to which the *name* x is applicable together with the group to which the *name* y is applicable, a mere consideration of the use of language will tell us that

$$xy = yx \quad \text{where} = \text{represents identity of membership.}$$

$$x + y = y + x$$

and

$$z(x + y) = zx + zy$$

which are perfectly comparable to the fundamental laws of algebra. It will also tell us that

$$x \,.\, x \text{ (or } x^2) = x$$

a law which is peculiar to logic and is only true in algebra if x be restricted in value to 0 or 1.

Boole then proceeds to deduce these laws by direct consideration of the operations of the human mind. In his view the hearing or seeing of a general name causes the mind to turn its attention to a certain restricted group in an universe of discourse which is already before it. All the laws can be deduced from considering such operations and their combinations. He holds that in reasoning signs stand *directly* for conceptions and operations of the mind, but that, since these themselves represent things and their relations, signs *indirectly* stand for the latter. And all propositions are properly expressed by equation, in Boole's opinion; for all verbs can be reduced to the identification of two classes.

Boole makes his symbolism as like that of ordinary algebra as possible; and he does this intentionally. He says that the similarity of the formal laws, apart from questions of interpretation, is enough to justify a common symbolism. Really in short his plan is to treat logical formulæ exactly as if they were algebraical ones and to perform all intermediate processes as if this were true. At many intermediate stages this leads to logically uninterpretable equations, but at the end by subjecting the result to the condition $x^2 = x$, which differentiates logic from algebra, interpretable formulæ are obtained. Boole also takes over the numerical symbols 0 and 1, and shows that, if they are to have analogies in logic to their characteristic properties in algebra, *viz.*,

$$0.x = 0$$

$$1.x = x,$$

0 must stand for the null-class, and 1 for the universe of discourse.

He seems to hold (*a*) that the justifiability of using uninterpretable processes which lead to interpretable and true results is guaranteed *à priori* (in our sense, though not in his). That is when one has observed its success in a certain number of cases one sees that it is always justifiable, and sees this with complete certainty.

(*b*) He also holds that unless this procedure were justifiable there would be little use in attempting to deal mathematically with logic. (Cap. V. §§ 2-6.)

Boole's general method in logic may be summed up as follows: (*a*) If you are given an arbitrary function of classes $x, y, \ldots$ it may not be logically interpretable. But any statement expressed as an equation will, after certain transformations, be logically interpretable. (*b*) Let $V = 0$ be any equation, the left-hand side of which is of the form $\phi(x, y, z \ldots)$ when $x, y, z \ldots$ stands for classes and ϕ is any mathematical function. If we treat this simply as an algebraic expression in which the variables are restricted in their values to 0 or 1 we can always expand it in the form

$$\phi(1, 1, 1 \ldots)xyz \ldots + \phi(0, 1, 1 \ldots)(1 - x)yz \ldots + \ldots$$

where the variable factors (which Boole calls *constituents*) consist of all the combinations that can be formed by picking out 0 or 1 or $\ldots n$ of the n variables, forming their product, and multiplying it by the products of unity diminished in turn by each of the variables that has been left out in the first part of the process. The expansion will thus contain 2^n constituents, and it is obvious (1) that the product of any two of these vanishes, since any product of the form $x(1 - x)$ equals 0; (2) that the sum of all of them $= 1$; and (3) that they really represent a complete dichotomous division of the whole universe of discourse with respect to the properties for which the variables stand. Finally any constituent whose coefficient in this expansion is not 0 must be equated to 0, and each of these equations is a logically interpretable proposition. (This follows from the two facts (1) that the product of two different constituents $= 0$ and (2) that the square of any constituent is equal to the constituent.) (*c*) Again any explicit equation of the form $u = \phi(x, y, z \ldots)$ is logically interpretable, even though $\phi(x, y, z \ldots)$ itself be not so. When the right-hand side is expanded it will appear as a series of constituents whose coefficients are either 1, 0, $\frac{0}{0}$, or a, where a is any coefficient other than these and including as a limiting case $\frac{1}{0}$. (1) The interpretation of 1 and 0 (the two coefficients which obey the law $a(1 - a) = 0$) presents no difficulty. (2) If $a(1 - a) \neq 0$ it can be proved that the constituent whose coefficient is a must be equated to 0. (This is simply an application of the fact that u, since it represents a class, is subject to the condition that $u^2 = u$.) (3) The coefficient $\frac{0}{0}$ cannot be interpreted by means of mathematical deductions; it can be seen, however, that whenever $\frac{0}{0}$ appears as the coefficient of any constituent in the expansion of u the interpretation is that u contains an undetermined proportion of that constituent. To take a simple example:—

$u(1 - x) = 0$ obviously expresses the fact that All u is x.

Solving for u we get $u = \frac{0}{1 - x}$

$$= \frac{0}{0}x + \frac{0}{1}(1 - x)$$

$$= \frac{0}{0}x, \text{ when the interpretation clearly is}$$

that u is identical with an indefinite part of x.

There is one further point of interest to notice here. We see that the constituents in the expansion of u whose coefficients do not obey the equation $a(1 - a)$ must be separately equated to 0. What does this mean? It means that *if* u, which was perhaps given implicitly in an expression of the form $\phi(x, y, z \ldots u) = 0$, is to be capable of representing a class at all, certain relations must hold between x, y, z . . . etc. These relations were not explicit before, but they become so when the equation is solved for u and the conditions which distinguish logic from mere algebra are imposed on the solution.

(*d*) Boole is now in a position to tackle his general logical problem. For this purpose two further processes are needed: (1) what he calls *Reduction*, *i.e.*, the combination of the premises into a single proposition, and (2) *Elimination*, *i.e.*, the removal of terms which are present in the premises but are not needed in the conclusion. It is proved that if our premises be put in the form $V_1 = 0$, $V_2 = 0$ . . . $V_n = 0$, then the equation $V_1 + c_2V_2 + \ldots c_nV_n = 0$ (when $c_2 \ldots c_n$ are arbitrary multipliers) gives all the information provided by the separate premises and no more. Again if the coefficients of the constituents in the expansions of V_1, V_2, V_n be all positive, the coefficients c_1, $c_2 \ldots c_n$ can all be reduced to unity, and $V_1 + V_2 + \ldots V_n = 0$ will give all and no more than all the required information. Lastly, if these coefficients be not all positive it is only necessary to square each of the equations and add. So that $V_1^2 + V_2^2 + \ldots V_n^2 = 0$ will always have just the combined force of the premises $V_1 = 0$, $V_2 = 0$, . . . $V_n = 0$. (These results are once more a consequence of the fundamental facts that if t_m and t_n be any two constituents $t_mt_n = 0$ and $t_m^2 = t_m$ and $t_n^2 = t_n$.)

Elimination, as Boole carefully points out, is considerably different in logic and in algebra. In algebra the number of terms that can be eliminated depends on the number of independent equations between them that are given. But in logic elimination is conducted by means of the fundamental equation of duality $x^2 = x$, and so any number of terms can be eliminated even from a single equation. (The only limitation is that, if you try to eliminate so many terms that your original data supply no information as to the relations between those that are left, you will be confronted with the platitude $0 = 0$.) The result of eliminating x from

$\phi(x) = 0$ is $\phi(1) \,.\, \phi(0) = 0$. That of eliminating x from $\phi(x, y) = 0$ is $\phi(1, y) \,.\, \phi(0, y) = 0$. That of eliminating x and y from $\phi(x, y, z) = 0$ is $\phi(1, 1, z) \,.\, \phi(1, 0, z) \,.\, \phi(0, 1, z) \,.\, \phi(0, 0, z) = 0$.

The general rule can easily be seen from these examples. The proof depends on expansion in constituents and application of the Law of Duality $x(1 - x) = 0$.

(*e*) The solution of Boole's general logical problem is now all over except the shouting (which in this case consists of certain methods for abbreviating the process described above). The problem is : Given premises involving classes $x, y \ldots$ to find all that can be discovered from them about any class u which is any function of the classes $z, w. \ldots$ (It is not necessary that $z, w \ldots$ etc., should explicitly be included among the $x, y \ldots$ of the premises, for they can always be introduced on expansion in constituents, *e.g.*, $x = xw + x(1 - w)$.) The solution of the problem is : (1) Reduce the premises to a single equation $\phi(x, y \ldots) = 0$. (2) If $\psi(z, w \ldots)$ be the required function put $u - \psi(z, w \ldots) = 0$. (3) Reduce these two equations to a single one of the form $\chi(x, y \ldots; z, w \ldots; u) = 0$. (4) Eliminate $z, w \ldots$ from this. (5) Solve the resulting equation for u. You will thus obtain u as an explicit function of constituents involving $x, y \ldots$.

This will be an interpretable proposition, and any necessary conditions among the variables $x, y \ldots$ will become explicit. In Chapter IX. Boole gives various methods by which these processes may be shortened. They consist essentially in recognizing the simplifications which the Law of Duality imposes on algebraic expressions. Thus our old friends

$$p \mathrm{V} p \,.\equiv.\, p \text{ and}$$
$$(p \mathrm{V} q)\,(p \mathrm{V} r) \,.\equiv.\, p \mathrm{V} qr \text{ and}$$
$$p \mathrm{V} pq \,.\equiv.\, p$$

appear here under thin disguises. What this chapter really tells us is that it is often useful even for practical purposes *not* to wait till the end of a process before imposing the conditions that differentiate logic from algebra. As we shall see later, this is rather an important admission.

The next important point to notice is Boole's distinction between primary and secondary propositions and his method of dealing with the latter. A primary proposition for Boole is one which makes an assertion about things, *e.g.*, *Cæsar crossed the Rubicon*, *All men are mortal*, etc. A secondary proposition states a relation between facts, *e.g.*, *If it rains I shall get wet*, *Either he will arrive by* 2.30 *or I shall go out*. Not all propositions in the hypothetical or disjunctive form are secondaries. Boole calls : *Animals are either rational or irrational* primary. And not all secondaries, according to him, are hypothetical or disjunctive. *It is true that Smith is a knave* would be a secondary proposition. Boole treats all secondary propositions as referring to time. Let X, Y . . . be primary propositions. Let x be the class of moments at which x

is true ; similarly for y, etc. Let 1 stand for the whole time under consideration. Then (*a*) X *is true* can be expressed by $x = 1$, and x *is false* by $x = 0$. *If* Y *then* X can be expressed by $y = vx$ when v is an indeterminate class of moments which may have any value from 0 to 1. *Either* Y *is true or* X *is true* can be expressed by $y + (1 - y)x = 1$. (*b*) Equations containing x, y, obey all the laws of primary propositions, and in our work we can forget their reference to time and act as if we were dealing solely with primary propositions.

Boole's book teems with examples fully worked out, which are of great use to the student. He devotes two chapters (XIII. and XIV.) to a full treatment of certain arguments used by Clarke and Spinoza. There is also an interesting chapter (XV.) on Aristotelian Logic. Boole easily deduces the rules for immediate inferences and for the syllogism on his principles. The syllogism is essentially a method of elimination. Boole argues that probably all elimination could be reduced to syllogism, but that the general problem of logic is not merely one of elimination but is the one which he has solved ; and that the solution of this general problem cannot be performed by the doctrine of the syllogism alone. Moreover, he says, whilst such principles as the *Dictum de Omni et Nullo* are self-evident, they are not fundamental. They, together with much else which cannot be deduced from them, can be deduced from more primitive principles. He is inclined to make the Law of Contradiction the fundamental principle of logic. This is apparently because we have constantly used the Law of Duality, $x^2 = x$, and because this can be written in the form $x \,.\, x = x \,.\, 1$, whence $x \,.\, x - x \,.\, 1 = 0$ or $x(1 - x) = 0$. And this, on interpretation, becomes : Nothing is both x and not x.

It will be convenient to criticise Boole's logical doctrines before passing to his theory of probability. The latter is based on the former, but involves additional elements which will need to be explained and criticised later.

(1) Is logic really the science of the laws of our mental operations? Boole continually speaks as if it were. Yet he certainly does not confuse it with empirical psychology, since he holds that the truth of its laws is seen in their instances, not merely rendered probable by induction. And, as far as I can see, the only positive argument that he produces for thinking the laws of logic to be laws of our mental operations and not laws of their objects is that such an axiom as

$$xy = yx$$

involves a difference of order which is present among our acts of thought, but is not present among their objects. To me it seems clear that this argument does not show that the laws of logic are laws of our mental operations, and that the truth is that they are the laws of certain objects, *viz.*, propositions, their parts, and their relations.

It is true that these objects are essentially objects of *thoughts* (as distinct from other mental states such as sensation and perception), and further that the relation which subsists between the objects of certain acts of thought (*e.g.*, in the case of inference) determine whether these acts can be described as *valid* or *justifiable*. But this seems to be the sole special connexion between logic and thought, and it evidently does not make the laws of logic laws of thinking. As to the equation $xy = yx$ the truth seems to be as follows: As a matter of physical fact two symbols x and y can be written in two different orders; as a matter of psychical fact two classes can be thought of successively in two different orders; as a matter of logical fact the symbols xy and yx stand for one and the same class. The law $xy = yx$ is therefore a statement that there is no difference among *logical* objects to correspond to the difference of *spatial* order among symbols, or to the difference of *temporal* order among acts of thinking. So far then from being purely a law of thought, as Boole suggests, the identity asserted by it can only be understood if we go outside the different and successive acts of thinking and consider their single and timeless logical object. (Similar considerations would show that it cannot be an assertion purely about symbols.)

(2) Should propositions be expressed by equations? In the main undoubtedly Boole's motive for expressing propositions as equations was to obtain as much analogy as possible with ordinary algebra. The same may be said of his treatment of secondary propositions. A logician who is breaking new ground in formal logic will always be torn between two ideals: (*a*) that of recognising every distinction among propositions and of analysing the different kinds as fully and accurately as possible, and (*b*) that of establishing a symbolism which shall be as simple and fruitful as possible.

Frege and Boole illustrate the striving after the first and the second of these ideals respectively, and it is the merit of Russell's and Whitehead's system to hold the balance very evenly between them. In general Boole does not pretend that an equational representation is an adequate analysis of all kinds of propositions, yet he does seem to offer one argument. In trying to show that all verbs may be replaced by = and a class-symbol he argues as follows: You cannot understand the proposition *Cæsar conquered the Gauls* unless you understand what is meant by *One who conquered the Gauls*. Hence the latter is an essential constituent of the former, and the proposition really *means* (and is not merely logically equivalent to) *Cæsar is identical with one who conquered the Gauls*. The error of this analysis seems to me to be that it overlooks the important fact that a *finite* verb has two logical functions. As a *verb* it represents a relation, the same relation as its infinitive stands for. As a *finite* verb it also makes an assertion, the sign of which is the verbal inflexion. Now the fact of assertion is indeed common to all propositions whatever, and could be re-

presented by a common word or symbol the same for all propositions. But the relations represented by different verbs are different from each other and different from that represented by the verb *to be* (as used in *Cæsar is mortal*). If you force the verb into the predicate as in *One who conquered the Gauls* you have made no analysis whatever. You have (*a*) to recognise that this is at least a very different kind of predicate from *mortal* or even from *one who is mortal;* and (*b*) that it involves a relation between terms which is not that of identity. The verb has merely gone into the grammatical predicate, and any attempt to get rid of it there in favour of the relation of identity will only start you on an infinite regress. To put it generally, the notion of x's being mortal seems to be logically prior to the notion of *an x such that x is mortal* and it is therefore perverse to offer *Smith = one who is mortal* as an analysis of *Smith is mortal;* and further, even if this analysis were valid, it is mere lack of thought to treat *Cæsar conquered the Gauls* as if it were probably similar to *Cæsar is mortal.*

(3) There is nothing then to be said for equations as an *analysis* of propositions in general. Can we say that the advantages of making formal logic as analogous as possible to algebra outweigh the disadvantages? The only advantage that I can see is that elementary algebra and its symbolism is familiar to all educated people. Against this we may set the following disadvantages: (*a*) As we have seen an equational system necessarily involves a divorce between formal development and philosophical analysis. (*b*) Experience shows only too clearly how liable the practice of using the same symbols to represent different kinds of objects is to lead to hopeless confusion, *viz.*, to the failure to recognise that the objects denoted by the same symbols are different. The sign 2 unfortunately represents the integer 2, the rational fraction $\frac{2}{1}$, and the real number 2 (*i.e.*, a class of rational fractions). These are utterly different things; but, owing to the fact that they are all represented by the same sign, it is extremely difficult to get most people to see that they differ. (*c*) If formal logic be used (as in *Principia Mathematica*) for proving the fundamental laws of arithmetic, and, more generally, if we want to determine the relation of logic to mathematics, our enquiry will be confused and prejudiced at the outset by using in logic the symbols of arithmetic. (*d*) Since the mathematics of logic is simpler than ordinary algebra (owing to the existence of the relation $x^2 = x$ in logic) it is very perverse to insist on pretending all through one's work that this simplification is absent and only to impose it at the end. Boole himself practically admits this when he introduces his chapter on *Methods of Abbreviation.* (*e*) If we work with implications instead of equivalences we can always get back to equivalences if we want them by using the two equations

$$p)q \,.\equiv: p \,.\equiv.\, pq$$

and

$$p)q :\equiv: q \,.\equiv.\, p \vee q.$$

(4) A defect in Boole's logical symbolism is his treatment of particular propositions. We very greatly miss the symbols $(\exists x)$ and (x) of Russell and Whitehead. Primarily letters in Boole's system represent classes; thus we may compare his x's and y's to Russell's and Whitehead's α's and β's. But, owing to his having no symbol for class-membership, no symbols for individuals, no incomplete symbol like $(\exists x)$ . . ., and consequently no expressions of the form $(\exists x) . x \epsilon \alpha$, he is faced with the following problem: He must express *particular* propositions solely by relations of *equality* among *classes*. To do this satisfactorily is almost impossible. Schröder,[1] whose system resembles Boole's in many respects, used inequalities. But Boole does not do this in his logic, presumably from his desire to keep as close to ordinary algebraic equations as possible. He thus expresses All y is x by the equation $y = vx$, which means: The class y is identical with the common part of the class x and some indeterminate class v. What Boole really wants to say is that All y is x is equivalent to the statement: There is a class v such that $y = vx$. But he has no means of symbolising this kind of statement. In Russell's and Whitehead's notation it would be expressed in the form $(\exists v) . y = v \breve{\epsilon} x$; and this is formally equivalent to $y \epsilon x$. Having no symbol such as $(\exists v)$ Boole is compelled to introduce his indefinite class-symbol v as a real variable instead of an apparent variable. There is nothing in the nature of his symbolism to show that v, rather than x or y, stands for: *There is a class v such that* . . ., and that the statement $y = vx$ is not about the class v in the same sense in which it is about the classes x and y.

This defect is not very important in dealing with A propositions, because, as Boole points out, v can be eliminated and *All y is x* can be expressed by the equation $y(1 - x) = 0$. But this excuse cannot be made for his symbolism for I and 0 propositions. He symbolises Some y is x by the equation $vy = vx$. Allowing that v may be interpreted as *There is a class v such that* . . ., this means: There is a class such that its common part with x is identical with its common part with y. But this will always be true; for, if v be the null-class, we have $y.0 = x.0$ whatever x and y may be. We ought therefore at least to add the statement that $v \neq 0$. Hence a particular proposition cannot be expressed by an *equality* among classes alone. Again, we might enquire why v should appear on both sides. Would not the equation $vy = wx$, *i.e.*, There is a class v whose common part with y is identical with the common part of x and some class w, be more general? Take: Some men are black. If this be true is it certain that there is any *one* class except the null-class and the class of black men such that its common parts with x and with y are identical? Neglecting

[1] Schröder and Couturat have also incomplete symbols Π and Σ to correspond to (x) . . . and $(\exists x)$. . . .

the first case, for the reasons given above, the second would reduce the equation to the tautology $xy.y = xy.x$

i.e., $xy^2 = x^2y$

or $xy = xy$ by the Law of Duality.

To illustrate the same point and to give an example of Boole's methods we may solve the equation $vy = vx$ for y. We have

$$y = \frac{v}{v}x.$$

Whence $$y = vx + (1 - v)x \cdot \frac{0}{0} + (1 - v)(1 - x) \cdot \frac{0}{0}.$$

Here, it will be observed, a new indeterminate class symbol has been introduced by the coefficient $\frac{0}{0}$. And it cannot in general be identical with v itself, or the equation would reduce to $y = vx$ which represents All y is x.

As Boole points out v cannot be eliminated from $vy = vx$, for the attempt leads to the platitude $0 = 0$. As he also points out either v or w but not both can be eliminated from $vy = wx$, the result being, *e.g.*, $vy(1 - x) = 0$. This form of the equation is also open to the criticism mentioned above that, unless the *inequality* $v \neq 0$ be added, it does not properly represent a particular proposition. In fact a comparison of this form of the equation with the equation $y(1 - x) = 0$, which represents an A proposition, shows very clearly that Boole is trying to represent an I proposition by an A proposition ; for $vy(1 - x) = 0$ means literally All vy is x, and, allowing for Boole's failure to symbolise *There is a v such that . . .*, means : There is a v such that all vy is x. This must be admitted to be a very clumsy and unnatural way of symbolising *Some y is x*.

There is one other point to notice before leaving this subject. When, in the solution of an equation, Boole gets several constituents each provided with the coefficient $\frac{0}{0}$, he tells us that we may add the constituents as they stand and prefix $\frac{0}{0}$ to the result. The reason given is that $\frac{0}{0}$ may stand for *any* class. This is surely a bad reason. If it may stand for any class we are not justified in assuming that it stands for the same class in each case ; and unless this be assumed it is not obvious why we may take it outside the sum as a single logical factor. Boole's procedure is, however, really justifiable. Suppose we have such an equation as

$$y = \frac{0}{0}x + \frac{0}{0}(1 - x)z$$

or, as it might be written, $y = vx + w(1 - x)z$. The question is whether we are justified in writing this in the form

$$y = w(x + \overline{1 - x}z) \text{ or } y = \frac{0}{0}(x + \overline{1 - x}z).$$

Boole could have proved the justifiability of this procedure in the following way: If we put $y = vx + w(1 - x)z$ and $t = x + (1 - x)z$ we can form a single equation. If we eliminate from this v, w, x, and z we shall find ourselves left with the equation $y(1 - t) = 0$, which, on solution, gives $y = \frac{0}{0}t$, *i.e.*, $y = \frac{0}{0}(x + \overline{1 - x}z)$. The very fact, however, that there is an apparent difficulty here shows clearly that symbols like u, v, $\frac{0}{0}$ are not ordinary class-symbols like x, y, z . . ., but are a very awkward and inadequate way of symbolising what Russell and Whitehead denote by the incomplete symbol $(\exists u)$. . . . Thus the proposition $y = vx + w(1 - x)z$ is really only adequately symbolised by the expression

$$(\exists v, w) \,.\, y = vx + w(1 - x)z.$$

(5) The last point that I shall criticise before leaving the purely logical part of the work is the distinction between primary and secondary propositions and the introduction of time. In the latter point Boole is once more followed by Schröder, and it seems to me that, apart from all special arguments, a comparison with the respective fates of Fluxions and the Differential Calculus is ominous for this procedure. There is undoubtedly a genuine distinction between primary and secondary propositions, and Boole's distinction partly coincides with it. A proposition which asserts a quality of a proposition or propositional function, or a proposition which asserts a relation between two propositions or propositional functions, may fairly be called secondary. Thus *p is true*, *p is necessary*, $p)q$, $\phi x)_x \psi x$, and $(x) \,.\, \phi x \,.) \,.\, (x) \,.\, \psi x$ are secondary propositions. Now Boole so far agrees with this as to call secondary (*a*) propositions which ascribe the quality of truth or falsehood to propositions, and (*b*) those which assert a relation of disjunction or implication between two *propositions* (*e.g.*, what Keynes calls 'True Hypotheticals'). Thus he would count as secondary: *If it rains I shall get wet* and *If everybody be unvaccinated somebody will have small-pox.* But (*c*) he does not count as secondary propositions of the form $\phi x)_x \psi x$, *i.e.*, what Keynes calls 'Conditionals,' nor the corresponding disjunctives. Thus he would count as primary the proposition *If anyone be unvaccinated he will have small-pox.* There seems to be no good ground for this distinction, and Boole's error doubtless arises from the fact that he did not clearly recognise the distinction between propositions and propositional functions, and between real and apparent variables.

If he had carried his analysis further and declined to regard equations expressing identity between classes as ultimate, he would

have seen that primary propositions are really by no means common, and that the greater number of his so-called primary propositions are really assertions about the formal equivalence of functions.

We may now turn to Boole's doctrine of the connexion of secondary propositions with time. Boole seems to regard propositions asserting relations between events as the type of secondary propositions. Now these do contain an essential relation to time. But when he tries to make propositions like *p is true* refer to time his doctrine loses its plausibility. It loses it still further when we remember that a vast number of hypothetical propositions are not about events at all but about essentially timeless objects. Take the proposition if $3 > 2$ and $2 > 1$ then $3 > 1$. It is surely preposterous to offer as the meaning of this: The class of moments at which it is true that $3 > 2$ and that $2 > 1$ is identical with some part of the class of moments at which $3 > 1$. The absurdity is due to the fact that objects like 1, 2, and 3 are timeless, and the relations between them are timeless too.

Boole explicitly identifies eternal truths with propositions which are true at all times. This appears to me to contain a double error. (*a*) All propositions, if true at all, are true independently of time. When we say that a proposition about x is sometimes true we mean that a *function* involving x and t gives true propositions for certain values of t. This is disguised by the facts (1) that all assertions about events really involve a reference to the time at which they happen, and (2) that this reference is often not made explicit in speech and writing. Thus *Queen Anne is dead* seems to stand for a *proposition* and to be true at some times and false at others. But the fact is that, since the death of Queen Anne is an event, this form of words is incomplete, for it contains no explicit reference to time. The same form of words as used by me and as used by William III. do not stand for the same proposition, and therefore the fact that my statement would be true and William's verbally identical statement false does not prove that any proposition has been false and has become true. (*b*) A proposition which is 'always true' is an assertion that a function involving time gives true propositions for all values of t. Thus the proposition *If amber be rubbed with silk it becomes electrically charged* means *If at any time amber be rubbed with silk it then becomes charged at that time.* Such propositions are always about events. An eternally true proposition is one about the timeless qualities or relations of timeless objects. The whole of pure mathematics and logic provides an example of this.

Boole's own treatment of the relations of propositions to time seems to me very unsatisfactory and confused. He writes for X *is true* $x = 1$, *i.e.*, The times at which X is true are all times. But he also holds that a proposition may be sometimes true and sometimes false. How can this be compatible with the above

notation for X *is true?* I suppose the solution is that for Boole X *is true* has two senses. (*a*) It is an incomplete symbol which only stands for a proposition when a temporal determination is added. (*b*) It is this with the determination *at all times* added. He nowhere gives an expression for X *is sometimes true.* I suppose it would have to be $x = v$ and $v \neq 0$.

Let us now pass to Boole's general method in probability. As before we will first state and then criticise. According to him probability may be approached from two different points of view; each will lead to the same numerical results, and each in the end needs to be supplemented by the other. The first method is to define probability fractions as the ratio of the number of cases that give true values to a given propositional function (Boole does not of course use this expression) to the total number of cases, assuming them all to be equally likely. With this definition we can prove the usual fundamental propositions about the probabilities of conjunctive and disjunctive propositions, and we shall find that the probability of any event compounded in any way of the simple events $x, y \ldots$ is the same *algebraical* function of their separate probabilities $p, q \ldots$ as the compound event is a *logical* function of the events $x, y. \ldots$ The other method of attack is to start by assuming that expectation is a state of mind which, although it cannot be accurately measured, is at least subject to certain rules of increase and decrease. If we now assume that the measure of the expectation of a complex event is the same *algebraical* function of the probabilities of the separate events as the expression for the complex event is a *logical* function of the separate events, we find (*a*) that what common-sense judges to be greater or less degrees of expectation will have greater or less measures respectively, (*b*) that certainty is expressed by 1, and (*c*) that the ordinary laws of probability follow.

We now come to Boole's solution of the general problem. By 'the event x' he means 'that event of which the proposition which asserts the occurrence is expressed by the equation $x = 1$'. And similarly for compound events. Events are 'conditioned' when they are not free to occur in every possible combination; otherwise they are unconditioned. If now $\phi(x, y, z) = 1$ represents a compound event; x, y, z represent simple *unconditioned* events; and the probabilities of x, y, z, etc., are $p, q, r \ldots$ respectively, then Prob. $\phi(x, y, z) = \phi(p, q, r \ldots)$ when the $+$'s, $\times$'s, etc., in the first are to be read in their logical sense, and in the second in their arithmetical sense. Next Boole determines the *unconditioned* probabilities of a number of simple events given their probabilities under a condition $V = 1$. Now let x, y, z be any simple events; let S, T . . . be any compound events which are logical functions of these, and let us try to find the probability of any other compound event W. We can form a logical equation expressing W in terms of constituents formed from S, T, etc., regarding these as single logical terms. It will take the form

$$w = A + 0B + \frac{0}{0}C + \frac{1}{0}D$$

when A, B, C, D are sums of constituents involving s, t, . . . etc. (Here w, s, t . . . are letters written instead of the complex functions W, S, T, etc. What we do is to write $s = S$, $t = T$ . . ., $w = W$; reduce these to a single logical equation, and eliminate x, v, . . .) The solution of the above logical equation is

$$w = A + qC$$

and

$$D = 0.$$

The latter is a condition independent of w and may also be written in the form $A + B + C = 1$, or, for shortness, $V = 1$.

We now wish to pass from logic to probability. We were given the probabilities of s, t, . . .; but the condition $V = 1$ has emerged as involved in our data. Hence the given probabilities were probabilities *subject to the condition* $V = 1$ and not the probabilities of s, t, . . . as *unconditioned* events. We cannot therefore pass at once from logic to algebra, but must first find the *unconditioned* probabilities p^1, q^1, . . . of these events by the method which Boole has already given us. If we substituted these values straight away on the right-hand side of our equation, we should get the probability of w as an *unconditioned* event; but w is not unconditioned for it is subject to the condition $V = 1$. Hence we really require to find Prob. w under the condition $V = 1$. This Boole shows to be equal to $\frac{\text{Prob. } Vw}{\text{Prob. } V}$. Hence:

$$\text{Prob. } w = \frac{\text{Prob. } V(A + qC)}{\text{Prob. } V} = \frac{\text{Prob. } (A + qC)^1}{\text{Prob. } V}.$$

The right-hand side can now be determined by substituting the values p^1, q^1, . . . for s, t, . . . respectively everywhere in it, and reading all *logical* +'s, ×'s, etc., as *algebraical* ones. (I should say that Boole's exposition here is very condensed, and, to me, hard to follow. I think I have understood it, but I have added several steps that seem to me (*a*) justifiable, and (*b*) necessary for clearness.

Boole solves the still more general problem when the probabilities of S, T, etc., are given not *simpliciter* but under an explicit condition. No additional difficulty in theory is involved here since the explicit condition can be dealt with just like the originally implicit one which became explicit in the solution of the simpler problem.

One further question remains if this general method is to lead to determinate results in all cases. In passing from conditioned to the corresponding unconditioned probabilities we may have to solve algebraic equations of a degree higher than the first. We may then be in doubt as to which root to take. In a very

[1] For A, B, C, and D can contain no constituents in common and products of different constituents will vanish.

brilliant chapter on *Statistical Conditions*, Boole shows us how to determine this question. Incidentally in this chapter he gives all that is required for solving problems on Numerically Definite Syllogisms, as De Morgan called them. Examples are then supplied of the general method in two excellent chapters (XX. and XXI.) dealing with Problems on Causes and the Probability of Judgments.

I regard this work of Boole's on probability as being of the utmost brilliance and importance. I am not aware that the general problem which he solves has been solved before or since. So far as I can judge Boole's solution is essentially sound, and perhaps the very neat relation which appears in it between logic and algebra is a good excuse for approximating the two symbolisms, at any rate when dealing with problems on probability. On certain points, however, I find a good deal to criticise.

(1) Boole constantly talks of *the* probability of a proposition. I am sure that this is meaningless or elliptical. Probability is always probability relative to some datum or other. Perhaps *the* probability of a proposition might be interpreted as its probability relative to the laws of formal logic and to no additional propositions; this seems to be what Boole means by unconditioned probability.

(2) Boole confuses two apparently similar but really very different notions, *viz.*, *The probability of p given q* (which, following Mr. W. E. Johnson's convenient notation, we will write p/q) with *The probability of if q then p*. Interpreting *the* probability of any proposition as its probability relative to the laws of formal logic, and denoting the latter by f, this would be written $[q)p]/f$. Now the two are quite different. One is the probability that p is true given that q is true; the other is the probability that q implies p given the laws of formal logic. The cause of the confusion is the following: If we forget that *the* probability of a proposition in itself is meaningless we are liable to think that *The* probability of (p if q) is the same as (The probability of p) if q. And this is what Boole does. It leads him to one very extraordinary conclusion which he himself recognises to be paradoxical and which I regard as in itself a sufficient refutation of his theory. He shows that, on his theory, two formally equivalent propositions will have two different probabilities. The example that he takes is *If x then y* and *Either y is true or both x and y are false*. If the probability of the second be p he proves that that of the first will be $\frac{cp}{1 - p + cp}$ when c is an undetermined constant. Now this result follows through his taking Prob. (if x then y) as $\frac{\text{Prob. } xy}{\text{Prob. } x}$, *i.e.*, taking $[x)y]/f$ as the same as $\frac{xy/f}{x/f}$. But the fact is that they are not equal. The latter $= y/xf$, *i.e*, the probability of y given x and

the laws of logic. The former may be determined by the following considerations :—

$$x)y \,.\equiv.\, \text{not } (x \text{ and not } -y).$$

∴, assuming that formally equivalent propositions have the same probabilities relative to the same data,

$$\begin{aligned}[x)y]/f &= \text{not } (x \text{ and not } -y)/f \\ &= 1 - x\bar{y}/f \text{ (writing } \bar{y} \text{ for not } -y) \\ &= 1 - x/f \,.\, \bar{y}/xf \\ &= 1 - x/f(1 - y/xf) \\ &= 1 - x/f + x/f \,.\, y/xf \\ &= 1 - x/f + xy/f.\end{aligned}$$

If we use this value and apply Boole's methods we shall find that $[x)y]/h$, when h is the proposition that $[y + (1 - x)\ (1 - y) = 1]/f = p$, is equal to p.

(3) I now pass to a point of intrepretation where I find Boole very difficult to follow. When we solve our general logical equation we get

$$w = \mathrm{A} + q\mathrm{C}$$

where q is an indeterminate class. When we pass from logic to algebra Boole writes an indeterminate probability c for q. So far all is clear. Then he proceeds to interpret c. I quote his argument (p. 283): 'The logical equation, interpreted in the reverse order, implies that if either A take place or C in connexion with q, w will take place, and not otherwise'. (This is obviously true.) 'Hence q represents the condition under which, if C take place, w will take place. But the probability of q is c. Hence, therefore, c = probability that if C take place w will take place.

Now I cannot accept the latter part of this argument. We have proved (*a*) that $q\mathrm{C})w$, *i.e.*, that $q \,.\,)\,.\, \mathrm{C})w$. And (*b*) we are told that $q/f = c$. But the probability of an implied proposition is *not* the same as that of one which implies it on the same data. Suppose, *e.g.*, that $x)y$; let us call this datum h. Let $x/h = p$, and let us try to find y/h. We have

$$\begin{aligned}&y = yx + y\bar{x}. \\ \text{Hence}\quad &y/h = yx/h + y\bar{x}/h \\ &\quad = x/h \,.\, y/xh + (1 - x/h)y/\bar{x}h \\ &\quad = x/h + (1 - x/h)y/\bar{x}h \\ &\quad = p + (1 - p)q \text{ when } q = y/\bar{x}h.\end{aligned}$$

Hence it does not follow from the facts that $q \,.\,)\,.\, \mathrm{C})w$ and that $q/f = c$ that $[\mathrm{C})w]/f = c$. If, instead of $q \,.\,)\,.\, \mathrm{C})w$, we had $q \,.\equiv.\, \mathrm{C})w$ the required result would be obtained. But we do not have this. If we did we should have to have $\mathrm{C})w \,.\,)\,.\, q$. Now this would imply $w)q$, which is certainly not in general true.

And if we look further into Boole's statements on page 283 we cannot feel sure that he really means to assert that $c = [\mathrm{C})w]/f$.

For he proceeds to add that $c = \frac{Cw/f}{C/f}$. These two statements, as we have seen, are not equivalent; though Boole thought they were. Hence we cannot be sure which of the two he means. I am pretty clear, however, that he means the second. In the first place in the simple example (1) worked out by Boole on page 293, we can see that $c = \frac{Cw/f}{C/f}$. Secondly, I offer with some diffidence the following general proof that $c = \frac{Cw/f}{C/f}$. In the equation $w = A + qC$ multiply both sides by C, remembering that $CA = 0$, and $C^2 = C$. We get $Cw = qC$. Hence $Cw/f = qC/f$. Now, if q and C be independent, $qC/f = q/f \,.\, C/f$. But q is a purely arbitrary proposition; hence its probability cannot be affected by the truth or falsity of C; hence we may treat q and C as independent. We thus get the equation

$$Cw/f = q/f \,.\, C/f$$

i.e.

$$c = q/f = \frac{Cw/f}{C/f}.$$

(4) I find Boole's notation for simple events and conjunctions of simple events far from satisfactory. If x represents the event of raining the proposition *It rains* will be represented by $x = 1$. Similarly if y be the event of thundering, the proposition *It thunders* is represented by $y = 1$; the event xy is the double event of thunder and rain; and the proposition *It thunders and rains* is expressed by $xy = 1$. But if Boole is keeping to his notation for secondary propositions these equations surely ought to stand for the propositions: *It is always raining, It is always thundering,* and *It is always raining and thundering* respectively. The fact is that he does not provide a satisfactory notation for the two very different propositions: *It is true that it rains* and *It is always raining.* His failure to provide any notation at all for singular propositions (which, I am afraid, comes from a failure to distinguish the two relations ϵ and)) is also very inconvenient in dealing with many problems of probability. Nevertheless, I believe that Boole s mathematical treatment of probability is a great and original achievement, and that it would be easy and thoroughly worth while (when we have finished saving civilisation by the mutual slaughter of almost everyone who makes the continuance of civilisation possible) to remove its errors of detail.[1]

I conclude with a few words on Boole's views as to the light that mathematical logic throws on the constitution of the human

[1] I have now (Nov. 1916) succeeded in doing this and in giving a satisfactory account of $\frac{0}{0}$ and C. The work contains too many symbols for its publication in a periodical, so the reader must take my statement on trust for the present.

mind. His most characteristic doctrine is that, whilst the fact that the laws of thought and the laws of matter are mathematical in form might induce us to suppose that mind as well as nature is governed by necessity, the further fact of error shows that this conclusion is unwarranted and that either the mind can break the laws of thought or at least that these laws are only part of a much larger system of laws and may be suspended in the same kind of way in which you may say that the law of gravitation is suspended by the Principle of Archimedes in the case of a Zeppelin. To me there appears to be little of importance in these reflexions, because, as I have tried to argue, the laws of logic are not even a part of the laws of thinking but are the laws of certain objects which can only be grasped by thought.

C. D. Broad.

Religion and Science: a Philosophical Essay. By John Theodore Merz. Edinburgh and London: William Blackwood and Sons, 1915. Pp. xi, 192.

No one has laid the English student of modern thought under heavier or more varied obligations than Dr. Merz, whose sympathetic knowledge is as much in evidence in the present Essay as ever, with the advantage of being set forth in a style of exposition if possible still more lucid and equable than before. He has addressed himself to "the increasing class of thoughtful persons, especially among the younger generation . . . who feel themselves sore perplexed by the contradictions which apparently exist between the dicta of science and the tenets of religious creeds, who are not prepared to sacrifice the truth of either, but who find it extremely difficult to reconcile them" (p. 4).

The brief work is described in the sub-title as "philosophical," but more than once in the text the epithet "psychological" is used rather markedly, as on p. 166, where we read, "the psychological theory developed in the foregoing pages". Not only so, but after an introductory discussion of the ordinary popular view of the outer and the inner world—the view, that is to say, which contrasts these two worlds and puts them in opposition to each other, like the image in a mirror facing its original—Dr. Merz argues that they may better be regarded as "lying, as it were, on the same plane, making up together the total field of our consciousness". Immediately afterwards this is designated the "exclusively introspective point of view"; and the opinion is expressed that the advance of philosophic thought has been retarded by the difficulty of confining oneself strictly to introspective data, though British philosophy more than any other has tended to revert to the true path. And the object of the Essay is stated to be that of applying "this purely introspective view" to a special problem—the problem of Religion.

It is obvious that grave difficulties are involved in this general

method. To mention only two—we shall have constantly to be on our guard against a tendency to desert the standpoint of psychology and take up questions of validity and value, on which introspection can have nothing important to say. And further, it is quite certain that introspection as a method can do no sort of justice to the relation, which to the present writer seems vital, between Religion and History. Whether or no it is owing to these intrinsic difficulties of procedure, I freely confess to having found the course of Dr. Merz' argument as a whole, somewhat hard to grasp and I shall strive to lessen the injustice I seem bound to do it by stating it as far as possible in his own words.

The Essay is in three parts. Part I., more general in character, deals with "some of the more important features in the formation of our full-grown view of the world". These pages are very fresh and for the most part convincing, if taken, as the writer means them to be taken, as psychology. All our knowledge of external things is a development and elaboration of what were and still are purely subjective experiences; it is for each of us individually comprised in the moving stream of thought or (to use a figure that Dr. Merz prefers) the firmament of the soul. Appeal for the truth of this is made to an imaginative reconstruction of infantile experience. One fundamental notion with which the developing mind has to become familiar is that of Reality. This it actually reaches through the influence of personality or personalities—the mother, for example. "The instant at which the figure of a person flashes, as it were, on the background of the mind's consciousness, is the moment of birth of the distinction between object and subject" (p. 41). And the first acquaintance with anything real invariably grasps a totality, a "together". Thus the primordial view is synoptic, and this whole, lost in subsequent analysis, can never be recaptured with certainty by synthesis. The objective world, then, is not a continuum, as the stream of thought is, but a more or less disconnected assemblage of special experiences which have certain attributes in common. As Dr. Merz puts it in an important passage: "In later life, and especially in scientific research, we try to restore that continuity which the things of the objective world, in consequence of their detachment from the continuous background of consciousness, have lost" (pp. 53-4). The continuum had to be broken up for intellectual progress. At this point, if I interpret Dr. Merz rightly, he suggests that Science and Religion are conceived of as opposed interests just because it is forgotten that the outer world, of which Science treats, is only a part, and a very small part, of the whole field of consciousness which forms the larger and wider totality of all our experiences. Religion is concerned with the whole, of which the physical world is but a selected portion. Thus both aspects of the world, the scientific and the religious, spring from the common-sense view which we unconsciously adopt in the early years of life.

Part II. is occupied with showing in outline how the scientific view has arisen and has been developed through long elaboration. Science, dealing with a restricted and clearly defined portion of the total field of consciousness, carries still further the differentiation effected by common sense between the public world of experiences we share, or think we share, with others, and the private larger portion of the conscious field which forms a possession of each separate self. This selection is rendered more precise by scientific methods of measurement, explanatory conceptions like cause or substance, and so forth. "But on this road of description and explanation," says Dr. Merz, "we go a step further, and desire to have an interpretation of the external world or the Universe in its relation to our own selves which are included in it. In doing so we transcend the limits of external observation and bring in imperceptibly a reference to our personal feelings, desires, and volitions." A special study is required to deal with the aspect of things indicated by such words as end or purpose. This study is the subject of Part III., entitled Religion.

Dr. Merz calls this the "subjective" interpretation of the Universe, but he fails to justify the epithet, more particularly in a psychological point of view. At any rate, in this last section we are shown Religion endeavouring to recover the lost unity of experience—a function which Art and Poetry, though unsuccessfully, also strive to discharge. The satisfaction derivable from Art is open only to a comparatively small number of persons, and is likewise a fleeting thing, too much detached from daily life. We want such an interpretation of inner experience as will bring our emotions into some kind of intelligible connexion with the realities that surround us, will contain a rule of conduct fruitful in inner satisfaction, and will have a definitely social reference. "The pressure which we feel in the inner world indicates a reality which embraces the whole field of our consciousness, and which, if we could see it as clearly as we do restricted portions of the outer world, would explain to us and interpret the whole of reality" (p. 145). This reality behind our emotional life is most appropriately termed "Spirit". To define Spirit and point out more clearly the relation in which we stand to it, is the principal task of the religious view of the world. Doubtless religion has changed its doctrines in the course of history, but Science, to be fair, has done so too. Indeed, "the ultimate problem of life is in fact always the same, whereas the problems of science are continually changing" (p. 149). And the spiritual view, although vague, may yet be certain in content and meaning. Truth in this deepest sense is not attainable through critical analysis and dissection: these matters cannot be communicated through words; rather, as Plato says, "out of repeated debates on them, and much social intercourse, there is kindled suddenly a light in the mind, as from fire bursting forth, which, when once generated, keeps itself alive". To repeat once more

the main thesis of the Essay—the inner (spiritual and emotional) world is not opposed to the outer (sensuous and intellectual), but embraces it as the larger field of thought. Hence it is in Religion that at length we find again, at a higher plane, that synoptic view of experience with which life began.

I do not propose to remark upon the genetic account which Dr. Merz has offered of how our full-grown view of the world has been developed, or of the selective processes of Science, working first by way of quantitative measurement, then of abstract conceptions or categories. But one or two observations may be devoted to the book as a whole, read as a descriptive psychological account of the genesis of the religious interpretation of experience. To begin with, I should urge that psychology is not really capable of interpreting religion adequately. You cannot say with precision what religion is if you leave out the interest of the religious mind in truth, in the objective validity of belief; no explanation is complete even psychologically which omits this. Dr. Merz has left this question untouched. But the interest in truth is for religion, a constitutive interest and the psychology of the religious attitude has left its work half-done unless it has elicited the convictions with which the ideas of the believer are laden, and the motives inspiring them. There is not a historical religion which does not tackle this problem of truth in some fashion, with the intention of solving it, and this *intention* is a cardinal datum for the psychologist, whose business is to discover its significance for religious life. Moreover, just as no one who rejects determinism will admit that psychology could possibly give an exhaustive account of an act of moral choice, so, if you hold that faith in God is an illustration, or rather the supreme and culminating instance, of morally free action, you cannot possibly be content with what psychology as such has to say about faith. Psychology must eventually try to explain faith by resolving it into non-religious elements, which is to explain it away. The explanation of the psychologist—an abstraction after all—has of course much indirect value. To a large extent it will enable us to understand the peculiar psychical character of the religious experience, to feel ourselves into the position of an opponent, and to appreciate the part played by religion in spiritual life as a whole, what needs it satisfies, what effects it produces. But this is far from going all the way.

Once more, every psychological report upon religion "breaks bounds" at some point or other. Problems of truth and value intrude where they have no right to be. Thus on p. 176 Dr. Merz writes: "The soul and mind of the Universe—the Divine Spirit—is in this way inevitably endowed in our estimation with the attribute of personality". If we take the word "inevitably" in a psychological sense, however, the statement is obviously inaccurate, since such people as atheists exist. If we take it otherwise, the "inevitableness" must be of a logical or ethical kind, and we have

ceased to be psychologists. Other passages—*e.g.* "a higher interpretation sees in them the working of a highest Spiritual Power" (p. 190)—contain the same error. These involuntary divagations into what may be called the theory of religious knowledge appear to prove that after all psychology scarcely touches the problem of "the essence of religion". That problem is ignored as long as we fail to discuss the question whether religious certainty is valid, whether it rests, as really as scientific or ethical certainty, on necessities of a trans-subjective kind. The fact is, Dr. Merz is throughout not dealing so much with real religion as with *the possibility of religion* in the life of the soul, which is a quite different matter. Inevitable confusion arises if we do not keep psychology to its proper work of description and classification, while calling in some other interpretative discipline to treat of problems relating to the truth and value of religious experience.

Secondly, by confining himself to introspection and ignoring the inductive or comparative study of religious phenomena Dr. Merz seems to me to give a seriously defective account of how religion actually grows and lives amongst men. He omits the vital bond between genuine religion and history. From his exposition we might suppose that the most important relation in which the believer stands is his relation to nature, rather than his relation to that specific kind of reality we call history—the kind of reality, indeed, in which as a matter of fact we live the distinctively human life. Nature, as far as we have to do with it, resembles the ocean; it has its tides—the seasons—but it makes no progress which is morally significant. History does. And the vast bulk of the most characteristic religious life now upon the planet has been generated not by the contemplation of nature but by the moral infection that pervades history, and is concentrated in facts in which the believer sees revelation. When Dr. Merz speaks of the Ideal or Spiritual aspect of things, he means a higher interpretation of the same reality with which physical science deals, not (at least predominantly) the interpretation of a reality quite different in type. With this agrees the fact that he says little or nothing of the living bond uniting faith to moral experience. For morality too is unintelligible apart from the conception of history, of progress.

History, as a distinctive sort of reality, has come off rather badly at the hands of philosophers. We are still under the spell of the Greek tradition, for which, as for the Indian, reality in the deepest sense of the word is simply immutable. When it was urged that room must be found for a different type of real being, conceivably a higher type, people sought to discount the claim by reducing historical development to terms capable of being covered by natural law. Others exhibited (and discredited) the historical movement as finding its τέλος in the actual present. Others, seizing on a function which Kant had reserved for the *intellectus archetypus*, professed to set out the entire plan of history as a moving dialectic.

In every case the fact was ignored that it is *individuals* who have created the substantial fabric of the past, and that ideas have acted in life only through individuals whose ideas they were. Nothing has so badgered absolute systems of philosophy as the irritating fact of personality—unique, unrepeated, non-transferable. But in recent years men like Windelband and Rickert have at least made a beginning with the better view that history is different from nature because it is the sphere of the true individual. What the science of history has to do is to interpret this individual, who makes a contribution to human life that no general categories can ever fitly represent. All individuals have made some contribution, and many believe that the Founder of Christianity made a contribution which opened a new era. Certain supreme values were then realised for the first time.

Now to ignore this aspect of things, when we are trying to understand how men come to be religious, is, I should plead, studiously to miss the point. Apart from historical experience, religion is only a word; it is only in history that those societies are born without which faith could neither live nor be propagated. Furthermore, once we appreciate the crucial importance of the historical mediation for religious life, we perceive why the question of truth is vital. The mystic, indifferent to history, is equally indifferent to the trans-subjective significance of his moods. Genuine religion is never evoked apart from personal influence as creative of individual conviction and experience, and this comes to men through historical media and only so. While mysticism, at all events in its characteristic Eastern forms, does not lead the worshipper to identify himself with any purpose of God in the world, religion takes possession of the world in God's name; and it does so because, taught by history and its ethical meanings, it has come to regard the contents of the human time-series as the vesture or embodiment of a steadfast and prevailing aim. Hence to believe is not so much to have attained to a certain view of nature as to have perceived in the developing human story the presence of an ethical Power before whom we bow in unconditional surrender.

H. R. Mackintosh.

Senescence and Rejuvenescence. By Charles Manning Child, of the Department of Zoology, the University of Chicago. The University of Chicago Press, Chicago, Illinois, 1915. Pp. 465. (Agents for United Kingdom: Cambridge University Press.)

This book is a worthy presentation of fifteen years of research. It is comprehensive, thorough, lucid, abundantly documented and adequately indexed. The facts are carefully ordered, analysed and discussed. The theories emerge out of them as reasoned hypo-

theses. The argument against other hypotheses, if not always quite convincing, is always fair and well grounded. Like some other studies issued by the University of Chicago Press, whose agents in the United Kingdom are the Cambridge University Press, this book must be reckoned with in any future studies along the same lines. And these lines lead to all the great hypotheses of biology.

These general phrases convey no adequate conception of the wealth of factual materials adduced and discussed. In any case this would not be the place for the technical analysis of the experimental results. It is enough to indicate a few of the main issues. The problems are discussed from various standpoints in five parts —the problem of organic constitution, an experimental study of physiological senescence and rejuvenescence in the lower animals, individuation and reproduction in relation to the age cycle, gametic reproduction in relation to the age cycle, theoretical and critical discussion of results and theories. As the outcome of his facts and observations, Mr. Child constructs the following view of the nature of senescence: "Senescence is primarily a decrease in rate of dynamic processes conditioned by the accumulation, differentiation, and other associated changes of the colloid substratum. Rejuvenescence is an increase in rate of dynamic processes conditioned by the changes in the colloid substratum in reduction and dedifferentiation. Senescence is then a necessary and inevitable feature of growth and differentiation" (p. 59). "Early embryonic development is essentially a period of dedifferentiation and rejuvenescence" (*ib.*). This condensed statement contains many difficult points; but these points the book has been written to discuss. Of colloids, Mr. Child says—"In fact, the more we know concerning colloids the less possible it becomes to conceive of anything similar to what we regard as life without them. Whatever else it may be, it seems certain that the organism is a colloid system. From this point of view, our definition of the living organism must be somewhat as follows: a living organism is a specific complex of dynamic changes occurring in a specific colloid substratum, which is itself a product of such changes, which influences their course and character and is altered by them" (p. 26). This, so far as it goes, is a positive definition of organism in terms of chemistry, with the important qualification "whatever else it may be". Given the colloid substratum, the chemical reactions that proceed within it result in the accumulation of materials and in the slowing of the rate of metabolism. This is the process of growth, which is essentially the same as senescence, whose "limit" is death. Senescence is thus a normal and universal phenomenon in the progressive development of the organism.

To establish this generalisation, Mr. Child has first to dispose of conflicting theories. This he essays to do provisionally at the opening of the book. With him, individuation, differentiation, de-

differentiation (that is reversion to embryonic conditions), senescence, rejuvenescence, inheritance, inheritability, evolution, are all "moments" in the age cycle of the organism. In every grade of organism, from the lower plants to the higher animals, senescence, in one tissue or another, and in one degree or another, alternates with rejuvenescence, differentiation with dedifferentiation. Reproduction, whether sexual or vegetative, whether it be reproduction of the whole organism or reproduction of one cell from another, is fundamentally the same process, being a mode of rejuvenescence (dedifferentiation). This generalisation, if it can be established, negatives the "corpuscular theories" of reproduction, for example, Weismann's germ plasm (p. 461), which presupposes that the reproductive cell is differentiated from the beginning and continuously reproduces itself, the somatic cell being, as it were, a by-product. Mr. Child, on the contrary, maintains that "germ plasm is any protoplasm capable, under the proper conditions, of undergoing regression, rejuvenescence and reconstitution, into a new individual, organism, or part. In other words, germ plasm becomes merely an abstract idea which connotes the sum total of the inherent capacities or 'potencies' with which a reproductive element of any kind, natural or artificial, agamic or gametic, giving rise to a whole or a part, enters upon the developmental process. Germ plasm then is merely another term for heredity" (p. 462). This apparently dogmatic rendering is supported by a number of particular and general arguments, some of which, however, the Weismannist can readily meet. Further, Mr. Child maintains that neovitalism, including Driesch's theory of entelechy, is necessitated by such corpuscular theories as Weismann's; for each unit element of the germ plasm is imagined as itself an organism, capable of growth and relatively independent, and to create a major organism out of these elements needs some "principle," which Driesch provides in his entelechy. Mr. Child denies the validity of the corpuscular theories and considers that "to-day there is less basis for vitalistic theories than ever before" (p. 10). He admits, however, that Driesch is right in requiring some "principle" capable of establishing domination and subordination within the organism. But this principle Mr. Child finds, not in entelechy or any such hypothesis, but in the difference between the rates of metabolism in different portions of the organism (p. 54). This is sufficient to establish the "orderly course and definite result of differentiation" (p. 54), without assuming any entelechy. In plants, an illustration of this is the dominance of the vegetative tip over other parts. Such a dominance must exist equally in animals, but it is more difficult to establish. His experiments, however, with planarian worms and the delicate susceptibility tests applied to establish differences in the rate of metabolism between a "head" and other sections, do show differences in the rate of metabolism, and establish the fact that, in the tissues in which the rate of metabolism is

highest, stability is greatest. On this fact the whole theory of development rests. But in the wealth of inductive detail, I cannot trace any effort to explain why differences of metabolism should establish themselves in the ways they do. Nor do I feel that Mr. Child does full justice to the body of observations that suggested the continuity of the relatively segregated germ plasm of Galton and Weismann, or the mutations of De Vries, or the inheritable unit elements of Mendel. Of his arguments against the corpuscular theories and inferentially against the need for "vitalism," it seems to me that the strongest are (*a*) that the assumed units merely repeat the problem of the major organism, and (*b*) that if there is continuity from lifeless matter to living matter, the process is either all "mechanism" or all "purpose". He does not put the alternative in this precise way, but his theory implies that there is "a firm foundation for the belief that the living must have arisen from the lifeless and that the fundamental laws governing both are the same" (p. 13). In later parts of the book, he rejects the proximate teleology of the organism, but admits a possible teleological view of the world as a whole—a doubtfully coherent position.

There is no space to discuss these perennials of progressive controversy; I must take leave of this admirable volume of positive research with one or two excerpts: "Some degree of rejuvenescence occurs even in man, and different tissues differ as regards their capacity for rejuvenescence, the central nervous system being apparently least capable of regressive changes. This characteristic of the nervous system suggests the probability that the natural or physiological length of life in these forms is determined primarily by the length of life of the nervous system and that physiological death is primarily the death, as the final stage of senescence, of the nervous system. . . . For his high degree of individuation man pays the penalty of individual death, and the conditions and processes in the human organism which lead to death in the end are the conditions and processes which make man what he is. The advance of knowledge and of experimental technique may make it possible at some future time to bring about a greater degree of rejuvenescence and retardation of senescence in man and the higher animals than is now possible. But when we remember that the present condition of the protoplasmic substratum of these organisms is the result of millions of years of evolutionary equilibration, we cannot but admit that this task may prove to be one of considerable difficulty" (p. 310).

"The nervous system undergoes the least reduction in starvation" (p. 44). It is the most stable. "During the earlier stages of development, it certainly has the highest metabolic rate of any part of the body and in many cases, if not in all, this condition persists throughout life. Furthermore, during the later stages of life its special functional activity is certainly almost, if not quite, continuous" (p. 44).

"The cells of the nervous system in man and many animals are believed to persist throughout life, and to possess no appreciable capacity for regression and dedifferentiation beyond their ability to regenerate the nerve fibres which arise from them. Doubtless this belief is correct, so far as visible structural changes or measureable metabolic changes are concerned; but is there not reason to believe that the effect of a change in mental occupation or of a vacation after long-continued mental labour in a particular field is in some slight degree a rejuvenescence of the nerve cells? Many facts indicate that a reasonable variety in mental occupation is a factor in retarding mental senility" (p. 296).

"If we admit that the gametes are integral parts of the organism, there is no theoretical difficulty in the way of such inheritance (of acquired characters). Whatever the theoretical possibilities may be, it is, in my opinion, quite impossible to account for the course of evolution and particularly for many so-called adaptations in organisms without the inheritance of such acquired characters, but since thousands or tens of thousands of generations may be necessary in many cases for inheritance of this kind to become appreciable, it is not strange that experimental evidence upon this point is still conflicting" (p. 463). This seems to me open to the criticism that Mr. Child relevantly makes of the corpuscular theories—"these theories do not help us in any way to solve any of the fundamental problems of biology; they merely serve to place these problems beyond the reach of scientific investigation" (p. 11). Undoubtedly, Mr. Child adduces many facts in support of his far-reaching generalisation, but his views on the specialised differentiation legitimately named "inheritance" certainly need further exposition. In this book, his views are rather a formulation than a solution of the problem. When he says that "if evolution is in some degree a secular differentiation and senescence of protoplasm, the possibility of evolutionary rejuvenescence must not be overlooked" (p. 464), he is asking his generalisation to do merely fanciful service. In this volume he practically promises another book and the world of biology will look forward to it with keen interest.

W. Leslie MacKenzie.

VII.—NEW BOOKS.

Group Theories of Religion and the Individual.[1] By CLEMENT C. J. WEBB.

GREAT interest and I think a high value attaches to this volume of lectures, in which an eager and distinguished student of religious philosophy criticises the religious theory of the group of French scholars whose organ is *L'Année Sociologique*. Subject to reservations which the author makes with care and precision in the case of M. Durkheim himself, their view (notably that of M. Lévy Bruhl) is that religion belongs to a primitive and "prelogical" stage of human thought, and is destined to vanish in proportion as the reason of the civilised individual obtains its due predominance. For religion is rooted in collective representations; and collective representations[2] are always more or less illusory, as treated by the dry light of the individual intelligence.

Mr. Webb has no difficulty in showing that M. Lévy Bruhl's conception of a prelogical human mentality, which has no law of contradiction, but has a "law of participation" incompatible with our thought, is a mere figment, depending upon misunderstanding of simple differences in degree of enlightenment. Soo too with the idea that "the logical hierarchy is but an aspect of the social hierarchy". Classification is not explained by the fact that early classifications are affected by social analogies. With M. Durkheim the case is a little different. Though his definition of religion seems quite narrow and untenable, yet he recognises a true reality as appearing in the categories and religious phenomena which exhibit themselves first in social form. But on the whole, Mr. Webb finds that the group-theories, while recognising what are important aspects of religion in the identity of the deity with the group members, are altogether inadequate both as suggesting that religion is a vanishing survival of a prelogical age, and particularly in failing to deal with the individual experience of it. A dogmatic individualism, he thinks, frustrates in them every attempt to appreciate the individual's self-transcendence, and his need for an individual response in the Deity.

Thus he is less sympathetic than perhaps might have been expected towards even Miss Harrison's and Mr. Cornford's ideas; and finds the recognition of the individual's religious experience deficient, as throughout the group-theories, so in some which aspire to be more than group-theories. As Mr. Webb holds out a hope of what would be most welcome, a further investigation into these latter suggestions, I will venture, in order to make clear what he has to meet, the remark that in his concluding pages he seems to me to adhere too closely to an old conception

[1] *Group Theories of Religion and the Individual*, by Clement C. J. Webb, Fellow of Magdalen College, Oxford, late Wilde Lecturer on Natural and Comparative Religion in the University of Oxford. London, George Allen & Unwin, 1916. Pp. 205.

[2] Mr. Webb has a charge to bring in respect of an encouragement of such phrases as "collective representations" against many modern psychologists and logicians, in sympathy with Mr. Joseph's remarks, MIND, xix., 76, p. 468. It is odd that Green uses the phrase, *Works*, ii., 287. I do not know its history.

in taking the individual to be concrete and the universal to be abstract. In any ultimate account, I should have said, the individual of which he is speaking—the given person or thing—must be abstract, and the universal must be concrete.

I have been unable in this short space to express how greatly I value this book, and how absolutely successful it appears to me in its primary contention.

BERNARD BOSANQUET.

Social Adaptation. A Study in the Development of the Doctrine of Adaptation as a Theory of Social Progress. By LUCIUS MOODY BRISTOL, Ph.D., Assistant Professor of Sociology in West Virginia University, with a Preface by Thomas Nixon Carver. Cambridge: Harvard University Press, 1915. Pp. xii, 356. Volume xiv. of "Harvard Economic Studies".

This is a treatise which was awarded the David A. Wells prize for the year 1914-15, and is published under the direction of the Department of Economics of Harvard University. It consists of a successive treatment of the views of modern writers which bear upon social adaptation, beginning with Auguste Comte and ending with William James and Mr. E. A. Ross. The framework is a distinction of adaptation into passive, *i.e.*, non-purposeful, material and spiritual, and again active, *i.e.*, purposeful, material and spiritual. Thus adaptation is carried beyond its biological meaning, and comes to include everything that can be done for social and individual progress.

Professor Carver's preface prepares us for a doctrine of social evolution which will have a revolutionary effect by demanding a morality in accordance with the order of nature and of the universe—a morality of natural selection, of strength and efficiency. But nature perhaps is one thing, and the universe is another. We seem to have heard such phrases before, and we have observed that nature in the strict sense is not all there is in the universe; while if it is not to be in the strict sense, our standard is still to seek.

The author of the treatise is a good deal more discreet than the preface writer. He is aware that the weak may convert the strong, and that the effect of example is one of the noblest modes of prevalence—was it necessary to crystallise this truth in such a word as "exemplifaction"? But in the end, after going through a miniature history of sociology, out of which there is developed a view to be called "social-personalism," we come back to this, "All these unities and all forms of associational life are means to the attainment of the one supreme good—the well-being of the greatest number of rational individuals including not only the present but future generations". To make this anything like true, must we not parody the Benthamite ambiguity, and say "the *highest* well-being of the greatest number of rational individuals"? This would leave the main question undecided, but at least not falsely closed.

Something is wanting, which might have been learned for instance from Nietzsche, of the imperativeness of great achievements and purposes. But when we turn to the account of Nietzsche we see that it is largely second-hand, and adopts a commonplace point of view. This is the Nemesis of these very inclusive studies; the accounts of individual writers are not very valuable, while the main thesis of the book is insufficiently worked out. I do not mean that the treatise is other than sensible and instructive.

BERNARD BOSANQUET.

Psychology in Daily Life. By Carl Emil Seashore, Professor of Psychology and Dean of the Graduate College in the State University of Ohio. Conduct of the Mind Series, edited by Joseph Jastrow. London and New York: D. Appleton & Co., 1914. Pp. xviii, 225.

"It is," says Prof Jastrow in his general introduction, "the purpose of the series to provide readily intelligible surveys of selected aspects of the study of mind and of its applications." Again he says, "the desire to apply this knowledge reflects the stress of the practical temper; the need of adaptation of the mental equipment to the complex conditions of modern life is insistent". The motive of the present series is "to supply the foundation in principle for the guidance of practice". In a special introduction to Prof. Seashore's book, Prof. Jastrow more closely justifies the present volume, which includes chapters on play, serviceable memory, mental efficiency, mental health, mental law, law in illusion, mental measurement. "The spirit of play makes the game of life; the skill in exercising it makes the artist. . . The problem of the conduct of mind is presented as the regulation of work and play" (p. xi). Prof. Seashore is lucid in expression, concise, directly practical, and vivid. The presentment, though popular in language and form, everywhere rests on the verified results of the psychological laboratory. Here and there, the directive rules of action and the stress laid on efficiency suggest the over-seriousness of a people "on the make"; but the rules are relevant and practical and every civilisation needs them. The vocational analysis of a singer is an excellent illustration of the methods of studying the individual. The book aims at giving a psychological perspective to conduct and in this it succeeds; it is rather a book for practice than for summary.

W. L. M.

Human Motives. By James Jackson Putnam, M.D., Professor Emeritus, Diseases of the Nervous System, Harvard University. London: William Heinemann, 1915. Pp. 175.

The Meaning of Dreams. By Isador H. Coriat, M.D., First Assistant Visiting Physician for Diseases of the Nervous System, Boston City Hospital; Instructor in Neurology, Tufts College Medical School. London: William Heinemann, 1915. Pp. 191.

Sleep and Sleeplessness. By H. Addington Bruce, A.M., Author of *Scientific Mental Healing*, *The Riddle of Personality*, etc. London: William Heinemann, 1915. Pp. 215.

Those three volumes are items in a Mind and Health Series. Each volume is written by a man familiar with his material. In general, all three volumes may be regarded as illustrations of the Freud psychology, not accepted uncritically, but kept throughout as the main standpoint.

In *Human Motives*, Dr. Putnam sketches the main sources of motives, the rational basis of religion, the psycho-analytic movement and its bearings on education, the relation of instincts and ideals, and the possibility of bringing them into synthesis. His philosophical standpoint in the chapter on the "Rational Basis of Religion" is a little difficult to grasp; but it is essentially an effort to express the notion underlying Bergson's *élan vital*, self-creative energy. On the practical side, especially in his account of the psycho-analytic movement and its bearings on education, he shows the wise sense that comes only from practical insight and experience. He explains how the apparent or asserted motive may be a mask for a "repressed" emotion. In education,

"too much stress is often laid upon the act, and too little upon the tendency of which the particular act may be a sign" (p. 113). Individualism, when it is not a stepping-stone to something better, "unmasks itself as a sign that the development of the individual received a check at an earlier stage, and that we have before us a situation of immaturity" (p. 160). This small book is full of penetrative remarks of this order. It forms an admirable introduction to the series.

In *The Meaning of Dreams*, Dr. Coriat gives a simple and admirably balanced account of the Freud theory of dreams and its applications. He deals with the nature of dreams; the method of dream analysis; dreams as the fulfilment of wishes; dreams and the unconscious, and the mechanism of dreams as now made familiar in many recent volumes and discussions. This volume forms a good general introduction to the fundamental ideas of psycho-analysis.

In *Sleep and Sleeplessness*, Dr. Addington Bruce, Editor of the Series, gives full value to the Freudian standpoint, but is not bound by it. He deals with the whole question of sleep and sleeplessness in an eminently practical way. "Almost always, in fine, there is hope for the insomniac; almost always his is distinctly a curable malady; and almost always, in the last analysis, the cure rests with himself" (p. 215).

These three well-written and well-printed volumes are good illustrations of applied psychology. It is natural that, for the moment, the Freudian standpoint should predominate; but it is right that the great practical value of Freud's methods should become widely enough known to provoke the necessary qualifying criticism.

W. L. M.

A Historical Introduction to Ethics By THOMAS VERNER MOORE, Ph.D. New York: American Book Co., 1915. Pp. viii, 164.

As the author states in his preface, this book is not meant to be a history or a text-book of Ethics, but an introductory treatment of leading ethical doctrines, illustrated by reference to prominent names in the history of Ethics. The standpoint of the book may be best indicated by saying at the outset that it appears to have been written especially for students in Roman Catholic seminaries. In the first part of the book the different forms of Hedonism are considered under the designation, "Conditionate Morality"; the second part discusses other systems under the name of "Absolute Morality"; and the third part is devoted to criticism. The separation of the criticism from the account of a writer leads to some repetition, but in the early stages of such study that is an advantage. The book is, however, very uneven. Butler and Green are not mentioned, and only five paragraphs, making a page and a half, are given to Sidgwick, while Rousseau, who there "can be no doubt" was "psychopathic," receives five pages. The use of the term "Egoistic Utilitarianism" is to be deprecated, especially as "Egoistic Hedonism" and "Utilitarianism" are generally accepted as quite distinct. The ethical doctrine of Kant assumes a different appearance according to the place which one gives to the concept of "humanity in thine own person" as an end: Dr. Moore merely mentions the form of the Categorical Imperative in which this occurs. The conception of a "realm of ends" is not referred to at all, though it is a valuable one for the standpoint of the book. Not only is there no consideration of the different attitudes which Plato assumed towards Hedonism, but also no hint is given of the fundamental reason for its rejection, that the good must be enduring, while pleasure is transient. In the comparatively long account of

Aristotle no reference is made to the idea of the "mean" relative to the individual in accordance with right reason, and as the wise, practical man would decide. The account of the ethical system of St. Thomas Aquinas is the longest, and as one might reasonably expect, is really good. A good feature of the discussions is that the positions of the authors are very frequently stated in their own words.

In an Introduction contributed by Dr. Shahan there is a misunderstanding of the position of those who would make Ethics a "positive" science. As a "positive" science Ethics would be a systematisation and consideration of moral judgments and the hypothetical elaboration of the ideal standards they imply. The application of these to the test of any particular act of conduct, intention, or character will be normative, but such application is beyond the scope of the *science* of Ethics. Ethics as a science of "moral facts" is simply Ethics as a science of "moral judgments," and the indefinable goods they refer to. Such a positive science may even admit that "a full and perfect ethics" is not possible without considering the relation of man and God. If these "indefinable goods" are admitted—as they must be—the conclusion is forced upon one that the "moral judgment" is not merely "rational" (even mathematical judgments are not), and, in opposition to Dr. Moore, we must say that "Reason" *may not be* "the ultimate channel through which we receive the knowledge of right and wrong" (143), essential though it be in the making of moral judgments.

The author does not seem to recognise that though to give "numerical" values to "emotional states," or to sum such state "numerically" is impossible, in reflection and deliberation before moral choice we do in fact compare all the foreseen consequences of the different possible modes of conduct, and do in some sense contrast one sum of values with others. And this is the case not only for the individual but also for society, in so far as men deliberate on the issues before they exercise their political power.

There are useful lists of books for reference and further study of the various authors discussed, but no list of books of systematic Ethics. Yet the students of this book would do well to study a few books like Mackenzie's *Manual of Ethics*, Rickaby's *Moral Philosophy*, Seth's *Ethical Principles*, or Rashdall's *Theory of Good and Evil*, along with the books mentioned.

ALBAN G. WIDGERY.

Deliverance—The Freeing of the Spirit in the Ancient World. By HENRY OSBORN TAYLOR, Litt.D. Macmillan & Co., 1915. Cr. 8vo. Pp. 298. 6s.

Dr. Taylor's small volume is worthy of the attention of the general reading public, not only for the real interest of the subject-matter but also for its pleasing style. It is a survey of the chief attempts of the ancient world to find satisfaction for life's needs. These attempts are associated by Dr. Taylor with the great personalities of the past, starting with Hammurabi, and passing on to Confucius, Lao Tzu, Gotama, Zarathustra, the Prophets of Israel, the Poets and Philosophers of Greece, the Roman Stoics, Jesus, Paul, and Augustine. Throughout, one fact at least becomes clear, and should be taken to heart by those students of religions who emphasise their similarities at the expense of their differences: "the needs of men are not the same universally". Even where the conclusions arrived at are similar, as *e.g.* in the Buddist conception of the impermanence of all component things, and in the theory of flux

of Herakleitos, the motives which led to them were not the same. It would be more correct if Dr. Taylor had said that men have not always felt the same needs with the same intensity. The differences are largely differences of emphasis. The problem of life is for all one of "adjustment"—with reference to what is "within" and to what is "without" the personal individual. The one universal element is the "love of the best" which drives man on to perfect peace and perfect freedom. The endeavour itself seems to be the attainment, the path the goal. Though much in the volume is very vague the author succeeds remarkably well in extracting what is fundamental in the different attempts and in presenting it in carefully chosen words and with many apt quotations. It is to be regretted that the references to the quotations are so inadequate. The main defects of the "adjustments" are indicated, as *e.g.* that the Indian attempts are not merely careless of the individual but even seek adjustment itself in its elimination.

The short account of Gotama is particularly good, and that of Jesus equally poor. It is of no value to say we must treat Jesus as "the Messiah and the Son of God—as he deemed himself," unless we say clearly what is to be understood by these terms. The nature of the "adjustment" associated with the name of Jesus depends on the interpretation we give to these words. The account of Greek attempts ought to have led on to Plotinus and Neo-platonism, and not have ended with the discussion of Epicureanism. Again, seeing that the leading minds of all the great religions except Islâm are considered, it is a pity Dr. Taylor did not extend his treatment far enough to take in Mahomet.

It would take far too much time and space to examine the details of this thoughtful volume. Suffice it to say that the chief defect of the conclusion of the book is the failure to make sufficiently clear that these attempts are mostly one-sided. Thus, though it may be to some extent true with reference to Stoicism that "As a means of human adjustment and of deliverance, philosophic thought has broken down," it must be insisted that philosophic thought is none the less *one* of the means of adjustment and of deliverance for minds with intellectual needs. On the last page the author expresses doubt concerning individual immortality, and finally says, "Less rapturous, more analytic, tempers may also conclude that only infinite life is suited to eternity, not man but God". The question may indeed be asked whether after all that is not what the best thought of Hinduism has always meant in that endeavour to eliminate individuality, for which Dr. Taylor has himself criticised it.

ALBAN G. WIDGERY.

Received also :—

Eric S. Robertson, *The Bible's Prose Epic of Eve and Her Sons*, London, Williams & Norgate, 1916, pp. vii, 291.

Maurice Maeterlinck, *The Wrack of the Storm*, London, Methuen & Co., 1916, pp. x, 277.

G. Van Ness Dearborn, *The Influence of Joy*, London, Heinemann, 1916, pp. xviii, 223.

Herbert Branston Gray and Samuel Turner, *Eclipse or Empire?* London, Nisbet & Co., pp. x, 316.

Florian Cajori, *William Oughtred, A Great Seventeenth-Century Teacher of Mathematics*, Chicago, London, The Open Court Publishing Co., 1916, pp. vi, 100.

Rev. J. O. Bevan, *Handbook of the History and Development of Philosophy*, London, Chapman & Hall, 1916, pp. viii, 223.

Antony J. Philpott, *The Quest for Dean Bridyman Conner*, London, Heinemann, 1915, pp. viii, 251.

Henry Maudsley, *Organic to Human: Psychological and Sociological*, London, Macmillan & Co., Ltd., 1916, pp. viii, 386.

G. Santayana, late Professor of Philosophy in Harvard University, *Egotism in German Philosophy*, London and Toronto, pp. 171.

Sir Bampfylde Fuller, *Man as He is*, Essays in a New Psychology, London, John Murray, 1916, pp. 247.

John Dewey, *Essays in Experimental Logic*, Chicago, The University of Chicago Press, 1916, pp. vi, 444.

F. Otto Schrader, *Introduction to the Pancaratra and the Ahirbudhnya Samhita*, Madras, Asyar Library, 1916, pp. xi, 177.

Twenty-ninth Annual Report of the Bureau of American Ethnology to the Secretary of the Smithsonian Institution, 1907-1908, Washington, Government Printing Office, 1916, pp. 636.

Thirtieth Annual Report of the Bureau of American Ethnology to the Secretary of the Smithsonian Institution, 1908-1909, Washington, Government Printing Office, 1915, pp. 453.

Benchara Branford, *Janus and Vesta*, a Study of the World Crisis and After, London, Chatto & Windus, 1916, pp. xviii, 316.

C. A. Wynschenk Dom, translated from the Flemish, *John of Ruysbroeck, The Adornment of the Spiritual Marriage, The Sparkling Stone, The Book of Supreme Truth*, Edited with an introduction and notes by Evelyn Underhill, London, J. M. Dent & Sons, Ltd., 1916, pp. xxxii, 259.

H. L. A. Visser, *De Collectieve Psyche in Recht en Staat*, Haarlem, H. D. Tjeenk Willink & Zoon, 1916, pp. viii, 250.

Jacob Israel de Haan, *Rechtskundige Significa en Hare Toepassing op de Begrippen "Aansprakelijk, Verantwoordelijk, Toerekeningsvatbaar" Academisch Proefschrift*, Amsterdam, W. Versluys, 1916, pp. 273.

VIII.—PHILOSOPHICAL PERIODICALS.

Psychological Review. Vol. xxiii., No. 4. **J. R. Angell.** 'A Reconsideration of James' Theory of Emotion in the Light of Recent Criticisms.' [James' theory is not essentially affected by the work of Sherrington and Cannon.] **H. Carr.** 'Head's Theory of Cutaneous Sensitivity.' [A critical review, warning against hasty acceptance.] **H. K. Haeberlin.** 'The Theoretical Foundations of Wundt's Folk-Psychology.' [Wundt arrives by a conceptual process (creative synthesis, psychical actuality, relation of individual to group, unilinear psychogenesis) at a psychological construct, the folk-soul, with which he operates in a purporting science of over-individual syntheses. He involves himself in contradiction by his *a priori* assumption that, in the study of cultural phenomena, the historical and psychological standpoints are methodologically separable.] **A. F. Bronner.** 'Attitude as it Affects Performance of Tests.' [Cases illustrating the effect of deceitfulness, recalcitrancy, sportiveness, emotive disturbance, nervous excitement, lack of confidence.]—Vol. xxiii., No. 5. **J. Peterson.** 'The Nature and Probable Origin of Binaural Beats.' [Binaural beats cannot be referred to bone conduction; they and the perception of phase-differences are cortical in origin.] **J. V. Haberman.** 'The Intelligence Examination and Evaluation; a Study of the Child's Mind.' [Plea for medical co-operation in the administration of tests; detail of tests of knowledge and memory.] **C. E. Ferree and G. Rand.** 'A Substitute for an Artificial Pupil.' [The writers use the corneal image of the spectroscope-slit.] **W. F. Dearborn and H. S. Langfeld.** 'Portable Tachistoscope and Memory Apparatus.' **H. S. Langfeld.** 'Portable Self-registering Tapping-board and Counter.' **H. M. Johnson.** 'A Note on Ferree and Rand's Method of Photometry.' [The Method fails to detect large deviations from proportionality of difference in illumination on the compared fields.] **H. C. McComas.** 'Extravagances in the Motor Theories of Consciousness.' [The Motor areas are the less important for consciousness; sense-organs are more complex than muscle and gland; organic changes do not closely correspond with conscious states; pure motor aphasia does not disturb central and sensory processes.] Discussion. **T. L. Kelley.** 'Further Logical Aspects of the Binet Scale.' [Otis has failed to utilise the principle of partial correlation.]

Philosophical Review. Vol. xxv., No. 4. **A. Lalande.** 'Philosophy in France in 1915.' [Effects of the war; historical studies and studies of *droit*; F. Pillon.] **C. L. Morgan.** 'Continua and Discontinua.' [Lays a foundation for theory of knowledge in the perception of uniform continua and orderly discontinua. In reference to the spatial world our perception slides along what we perceive; and through such perceptual travelling we come to know facts and truths.] **D. F. Swenson.** 'The Anti-Intellectualism of Kierkegaard.' [Logic, according to Kierkegaard, cannot deal with the contingent, the particular, the factually existent; nor can it provide transition from quality to quality.] **M. W. Kehr.**

'The Doctrine of the Self in St. Augustine and in Descartes.' [Both use the self as the basis of philosophy, relate the problem of evil to the self-doctrine, and base power of choice on consciousness of freedom. They differ by their estimates of the relative importance of theology and philosophy.] Reviews of Books. Summaries of Articles. Notes. **G. T. Ladd.** 'A Disclaimer and an Explanation.' [Biographical.]—Vol. xxv., No. 5. **E. H. Hollands.** 'Nature, Reason, and the Limits of State Authority.' [Critique of Hegel's state-absolutism. The political organisation, the state, is to be distinguished from the looser organisation (based on manners and customs, language, culture, ideals) of the nation.] **G. H. Sabine.** 'Liberty and the Social System.' [Discussion of Bosanquet. It is as much the nature of society as of the individual to need reorganisation, and social reorganisation must proceed mainly from the intelligent initiative of individuals.] **W. K. Wright.** 'Conscience as Reason and as Emotion.' [Systematic ethics may reconcile rationality and objectivity (Rashdall, Moore) with the results of evolutionary analysis (McDougall, Westermarck).] **C. W. Doxsee.** 'Hume's Relation to Malebranche.' [The two have a like analysis of causation, a negative account of the knowability of self, and a doctrine of natural judgment or belief.] Discussion. **G. C. Bussey** and **M. D. Crane.** 'Dr. Bosanquet's Doctrine of Freedom.' Reviews of Books. Notices of New Books. Summaries of articles. Notes.

American Journal of Psychology. Vol. xxvii., No. 3. **A. Schinz.** 'The Renewal of French Thought on the Eve of the War.' [Notes the return to Orthodox Catholicism.] **E. G. Boring.** 'The Number of Observations upon which a Limen may be Based.' [No positive rule, such as Fernberger's rule of 50, can be laid down.] **S. S. George.** 'The Gesture of Affirmation among the Arabs.' [Petermann's headshake for Yes is a mistaken observation.] **P. F. Swindle.** 'Positive After-images of Long Duration.' [Experiments on successive colour induction in birds (owl, cockatoo) and man, and on simultaneous in man, show that all colours induce themselves first and their antagonists last. Rules are given for the observation of long positive after images.] **C. E. Ferree** and **G. Rand.** 'A Simple Daylight Photometer.' **M. H. Strong** and **E. K. Strong.** 'The Nature of Recognition Memory and of the Localisation of Recognitions.' [Experiments with words. Recognition arises as awareness of relative ease of nervous discharge : it is measured objectively by reaction-time, subjectively by feeling (familiarity, strangeness). Localisation is perhaps a feeling-estimate of amount of familiarity.] **L. Dooley.** 'Psychoanalytic Studies of Genius.' [Review of work of last decade.] **E. B. Titchener** and **H. P. Weld.** 'Minor Studies from the Psychological Laboratory of Cornell University.' **M. Carnes** and **L. C. Shearer.** 'xxviii. Mechanical *vs.* Manual Stimulation in the Determination of the Cutaneous Two-point Limen.' [For most purposes, careful manual stimulation suffices.] **F. P. Boswell** and **W. S. Foster.** 'xxix. On Memorising with the Intention Permanently to Retain.' [In the case of learning a vocabulary, the intent helps to secure the desired end.] **A. J. Brown.** 'xxx. Some Uses of Artificial Daylight in the Psychological Laboratory.' **G. English.** 'xxxi. On the Psychological Response to Unknown Proper Names.' [No constant tendency is found ; individual differences are very large.] **E. B. Titchener.** 'A Note on the Compensation of Odours.' [Reply to Henning.] Book Reviews. Book Notes.—Vol. xxvii., No. 4. **K. M. Dallenbach.** 'The Measurement of Attention in the Field of Cutaneous Sensation.' [Applies to the skin (intensity and extensity of faradisation) the method used by Geissler for sight and by the writer for hearing ; similar results.] **H. Clark.** 'Visual

Imagery and Attention: an Analytical Study.' [Ocular movements are connected rather with general central and conscious conditions (attention) than with special differences of function of images.] **G. C.** and **C. E. Myers.** 'Reconstructive Recall.' [Study of recall of prose, verse, names once well known but now almost completely forgotten; pedagogical suggestions.] **H. E. Conard** and **G. F. Arps.** 'An Experimental Study of Economical Learning.' [In the four fundamental operations of arithmetic pupils should be told to think in terms of result only, and to restrict the audito-motorising mechanism.] **C. A. Ruckmich.** 'New Laboratory Equipment.' [Apparatus and charts.] **E. L. Thorndike.** 'Notes on Practice, Improvability, and the Curve of Work.' [The author finds no evidence of initial spurt in mental work; there is a slight warming-up effect, and a still slighter end-spurt.] **E. B. Titchener** and **H. P. Weld.** 'Minor Studies from the Psychological Laboratory of Cornell University.' **F. L. Dimmick.** 'XXXII. On Cutaneous After-images.' [Work on pressure spots with an intensity subliminal for subcutaneous presssure.] **E. de Laski.** 'XXXIII. On Perceptive Forms Below the Level of the Two-point Limen.' [Further evidence that subliminal separations of æsthesiometer-points are discriminable.] **W. D. Wallis.** 'Is Introspection Individual or Social, Within or Without?' [Criticism of McDougall; the psychologist must objectify and socialise his mental contents.] Book Reviews. Book Notes.

JOURNAL OF PHILOSOPHY, PSYCHOLOGY, AND SCIENTIFIC METHODS. xiii., 10. **H. G. Hartmann.** 'Science and Epistemology.' [Assuming that 'objective truth' is truth in the production of which the psychophysical individual is in no way involved, "the writer sets himself to show from science that the aforesaid individual is *not* involved at every point in the determination of reality". To do this he appeals to a chemical experiment, the making of water, in which he says the observer is irrelevant. He does not, however, notice that the notions of relevance and irrelevance are deeply tainted with 'subjectivity,' *i.e.*, relativity to purposes, and that no epistemologist who knew his business would be likely to pass his *ex post facto* appeal to so old and stale an experiment as really illustrative of the procedure of scientific knowing.] **J. L. Perrier.** 'The Permanent Contributions of the Pragmatists.' [Without any attempt at analysing pragmatist doctrine it is decided that the most important are (1) "the temporal character of reality," and (2) "the human element in the building up of reality," and also of 'scientific truths'. It is, however, admitted that the first does not belong exclusively to pragmatism, while the second would seem more properly to belong to humanism, which is distinguished, by an 'abyss,' from the "original timid principles" of James.]—xiii., 11. **B. H. Bode.** 'Ernst Mach and the New Empiricism.' [A good exposition, which points out, however, that in creating 'sensations' as ultimate 'elements,' Mach failed to carry through the empirical method consistently. Still he saw that this method "meant ultimately that philosophy must justify itself, not as an intellectual pastime or as an emotional indulgence, nor yet as an escape from the unwelcome realities of our present existence, but by its bearing on human weal and woe".] **G. Santayana.** 'Two Rational Moralists' [who "have revived the old doctrine that virtue is knowledge". Under this title are reviewed (briefly) Prof. Erskine's *The Moral Obligation to be Intelligent*, and Prof. Holt's *The Freudian Wish* (more fully). The latter is credited with the doctrine that if only a man could fully understand his 'passions' he "cannot go wrong morally," because he will see that he must harmonise them, and also how to do it. San-

tayana objects that knowledge does not "of itself harmonise *ultimate* impulses," or decide *which* of the many ways of harmonising by suppressing incompatibles is the best. Moreover, the difficulty of transferring the principle from an organic body to the world at large is underestimated.] Report on the New York Branch of the American Psychological Association by **A. T. Poffenberger, jun.**—xiii., 12. **H. T. Costello.** 'Professor Macintosh's Pragmatic Realism.' [Gives little information about the book reviewed.] **W. H. Sheldon.** 'The Demolition of Unreality.' [The unreal is to be 'abolished utterly' by declaring that reality "is *either* the same as Being in the most general sense of that term, *or* is a certain sort of Being". But in the latter case it would be Being + a character, and the addition of characters can confer neither Being nor reality. So reality must be "a fulness or acme of Being," and nothing more than "Being in the widest sense". Ergo "unreality means non-being," and is a contradiction. Hence error cannot be 'belief in unreal objects'. "For there are no unreal objects."] **R. B. Owen.** 'The Predicates Real and Unreal.' [Replies, pragmatically, to the last paper that it appears from analysis of the common use of the terms that "reality and unreality are evaluative terms" relative to an interest and a purpose, and the capacity of things of which they are predicated to satisfy or disappoint the same. Hence though unreality in an absolute sense vanishes, because it was a mistake, "things may have the value of being unreal".] **L. J. Henderson.** 'Teleology in Cosmic Evolution: A Reply to Professor Warren.' [Disclaims the latter's account of his position in xiii., 3.]—xiii., 13. **H. C. Brown.** 'Structural Levels in the Scientist's World.' [Scientific explanation, where it does not refer events to a law of which it is an instance, refers them to the lawful behaviour of more elementary facts. These may be called 'levels'. But it should be noted that the behaviour of an aggregate is nowhere the behaviour of its component elements, and that new types of law thus arise which are as significant as the fundamental laws.] **M. T. McClure.** 'Perception and Thinking.' [Attempts to identify the antithesis of perception and thinking with that of mechanism and teleology, and asserts an 'absolute dualism' between "on the one side perception, the particular, unity, mechanism, action; on the other thinking, the universal, multiplicity, teleology, consciousness". It follows that perception is non-cognitive and non-conscious. To the objection that pure sensations are abstractions and do not exist, it is answered that they are this only for knowledge, and that even when sensations occur along with consciousness, the consciousness is no part of the sensation.] **F. L. Wells.** 'Von Bechterew and Uebertragung.' [Expounds 'associative reflexes' and reactions.]—xiii., 14. **H. K. Chadwick.** 'A Suggested Metaphysics to Fit a Functional Epistemology.' [Endeavours to provide Pragmatism (*sp. Deweyensis*) with a metaphysic deduced from the concept of the '*unstatic*,' which "is a chaos of pure motion, activity, kinetic force".] **E. C. Parsons.** 'Primitive Improvidence.' [Suggests that this belief is largely based on 'ethnological ignorance,' and narrates the laborious 'rain-making' of the Zuñis of New Mexico. The providence of savages has merely taken a wrong direction, that of magic.] **H. B. Alexander** and **B. H. Bode.** Report on the Sixteenth Annual Meeting of the Western Philosophical Association, at which political philosophy appears to have predominated, the papers containing much criticism of the Hegelian doctrine of the State.—xiii., 15. **A. K. Rogers.** 'Belief and the Criterion of Truth.' [Starting from the definition that "truth for me is that which I cannot help believing," the author argues that the truth concerned is that of criticised beliefs, and that belief goes deeper than truth and includes more than logical connexion. It includes

acceptance by some one, and implicit faith in man's own nature and instincts. This is the rational basis of practical needs and emotional postulates which affect the reasonings of all, rationalists included.] **E. J. Kempf.** 'Did Consciousness of Self Play Part in the Behaviour of this Monkey?' [Describes the method by which one *Macacus rhesus* robbed another of food.]—xiii., 16. **L. T. Troland.** 'Philosophy and the World's Peace.' [Points out that man is only one of nature's many experiments, of recent origin, and may turn out one of her failures. The question is whether he can master himself and control his emotional instability. The present 'international lunacy of Europe' which has plunged it in "the most beastly war of history" throws a doubt upon this. The truth is that modern society, though systematised in detail, suffered from "a chaos of fundamental purposes. To prevent such a chaos is the function of religion in society." However, Christianity has failed to perform this function, and philosophic ethics also "has been singularly barren of practical results. . . . The consequences for the progress of civilisation, and even of man as a species, may ultimately be very serious. . . . Science alone cannot save us; alone, it may even prove our ruin. What we need is a system of thought, filling the place now occupied by religion, but possessing the strength of science."] **H. W. Wright.** 'The Object of Perception *versus* The Object of Thought.' [Regarding perceptions pragmatically as plans of action, we must yet note that they are also interpretations in terms of past experience functioning as an ideal system. Of such interpretations the 'true' one is selected and verified by objective reality which penalises some ideas when acted on and tolerates others. And as action always means "the motor adjustments of an individual, the object of perception always exists at a particular time and place in an individual experience". The thought-object on the other hand exists as a universal, because "it generalises individual experiences of effort and satisfaction". They are either steps in sequences of movements, and so 'mechanical,' or else sources of satisfaction, and so 'objects of value'. They gain 'objectivity' by claiming to be true and to agree with reality, and are controlled by their conformity with the accepted body of knowledge, and, ultimately, by "the direct verification the ideas of individuals receive in perception and action". The control by accepted knowledge is chiefly exercised through language.] **H. C. Warren.** 'Purpose, Chance, and Other Perplexing Concepts.' [A reply to criticisms by L. J. Henderson, xiii., 12, and J. S. Moore (xiii., 6).]—xiii., 17. **W. M. Urban.** 'Value and Existence.' [Starting from the inconsistencies of philosophic usage, the author tries to reduce values to three types; (1) the adjectival,' 'A is valuable,' which forms the ground for the relational theory of value; (2) Value as quality, of the type 'A has value'; (3) the substantive' form, 'A is a value'. Moreover, 'value' is used in a narrower sense, relative to a subject, and in a 'broader,' recognising 'absolutely valid,' independent values which are indefinable. It is objected to (1) that in both its forms, the psychological and the ontological, the definition of value is circular—though no attempt is made to show that the circle is vicious, and that the transition from the values which *are* recognised to those which *ought* to be is not effected by the self-criticism of the former. To (2) the objection is that "it is perfectly possible for an object to have certain (value) qualities and yet as an object to have negative value," though again it seems obvious that both these judgments may merely indicate different phases in the same valuation-process. However it is concluded that the third view must contain the truth. Value must be "an indefinable like existence". But it must not be reduced to existence, because "it adds no new quality to the object". It is an 'objective,' in Meinong's sense, not an object, and is "not a form of being," but "merely

'valid' ". This does not account for the usage, recognised in the beginning, which regards 'existence,' 'true reality,' etc., as values, but a further article is promised.] **H. B. Smith.** 'Fact, Definition, and Choice.' [Asks whether there are judgments that "can never be made an experimental issue," and adduces as examples the law of probability, the choice between alternative hypotheses, the adoption of a geometry, and *a priori* judgments, the last of which both absolutist and humanist are supposed to admit to be incapable of empirical verification. But the difference between the empiricist and the absolutist notions of 'verification,' and the methodological use of principles are not examined.]—xiii., 18. **H. G. Hartman.** 'A Revised Conception of Causation and Its Implications.' [Any change is *prima facie* a case of causation, but a cause is never *one* object alone, nor is it *all* objects. It is a number of relevant objects in interaction, which 'originate' the change. What objects interact and what do not is objectively and empirically determinable. To Hume's question—Why should the future resemble the past?—it may be answered that though no universal principle of recurrence may be established, yet recurrence may be observed as a matter of fact, that the supposed future knowledge is congruous with great bodies of past knowledge, and that the postulate of uniformity can be controlled by experience.] **L. H. Miller.** 'A Layman's Question About the "Freudian Wish" as Interpreted by E. B. Holt.' [A catena of quotations, together with the objections they suggest. The point is that Holt has not really banished 'subjective categories,' because they lurk in his unexplained notion of 'integration'.]

Revue de Métaphysique et de Morale. Vol. xxiii., No. 3, May, 1916. **A. N. Whitehead.** 'La théorie relationniste de l'espace.' [The grounds in favour of a relational, as opposed to an absolute, theory of space have been shortly indicated by Russell (*Our Knowledge of the External World*: Chicago and London, 1914, pp. 146, 147): Whitehead merely says that 'nominally at least, the absolute theory has been almost universally abandoned'. Russell (*ibid.*, pp. vi, 114-115) gives a sketch of Whitehead's definition of a 'point' from the relational point of view, and here Whitehead gives a far more detailed exposition of this definition and other matters. He uses the symbolism of Whitehead and Russell's *Principia Mathematica* for the expression of important definitions, but the rest of the paper, including the indication of demonstrations, is in ordinary language. A distinction is drawn between 'immediate apparent space,' 'complete apparent space,' 'physical space' (the space of physical science, in which molecules and electrons move), and 'abstract space' (the space of geometry). 'The exact analysis of the logical process contained in the parallelism between physical space and complete apparent space, and of the fundamental ideas which have led the human mind to it, do not come into the scope of this paper.' There follows a minute analysis of the axioms which 'often, implicitly or explicitly, govern thought on the subject' of spatial relations between objects and laws of change in these relations. The criticism of the notion of transmission of action by a continuous medium is instructive: action is said by many to be 'transmitted by the contiguous parts of the medium'. The author remarks: 'But there are no contiguous parts in a continuum'. The reviewer would remark that it does not seem necessary for an opponent of action at a distance to speak in the way justly condemned by the author: some people would say that a continuous motion (of a particle along a line) consisted in 'the ceaseless passage from one point to the next'; but still a properly defined continuous motion is logically possible. If it is objected, says Whitehead, that there is no action between material points but only between material

volumes, and that there are contiguous volumes, then : 'Consider the common limit of two contiguous volumes ; the action is produced only across this limit. But there are no infinitely small volumes, so we have two finite volumes acting on one another across their common limit. Now, these two finite volumes may be divided into two parts : no point [*position*] of either volume which can be included in a volume [also *position*] not contiguous to the limit contributes to the action, for it is at a distance from the limit. . . . The action is then due to the matter of the points situated on the limit. But this action has been proved impossible.' It seems, however, to the reviewer that, if a volume be a continuum, a point within the volume might act mediately on the point of contact if transmissibility of action were defined (as motion is nowadays) in such a way that it does not assume that there are contiguous points in a continuum. Then the author considers how the objection he mentioned last may be avoided by maintaining that a volume (under a certain magnitude) acts *as a whole*, and makes use of the important fact that two volumes cannot touch unless one of them is without *part* of a surface, at least. This leads to what Whitehead calls a very improbable, though logically possible, conception ; but 'the real objection is not this improbability but the unanalysed and uncritical conceptions of space and of objects from which it proceeds. To deny action at a distance is, in fact, to deny direct relations between physical objects which do not occupy the same points ; and that implies the negation of the theory of space-relation.' If the relativist theory of space is to be adopted, it is necessary that points, for example, should be complex entities, logical functions of the relations between objects which make up space. 'The fundamental idea in the relativist theory, in its construction of the concept of a world existing in space, is that of a class of relations (σ).' Starting from any class (σ) of relations, the author investigates what are the possible definitions of some fundamental spatial concepts and what properties σ must have in order that the usual propositions about the concepts thus defined may be true. A world, thus founded on a class σ, is called a 'world-σ'. Means by which the geometrical concept of 'point' may be defined for a world-σ. The first stage of this definition is the definition of a relation E_σ which is called 'inclusion-σ,' and which is analogous, in its formal properties, to the relation of whole to part. This relation of inclusion-σ may be used to define points. It makes us capable of reaching an element of the definition, that is to say, what are called 'material points-σ'. It is not the only means by which points may be defined, at least for the physical world, as the author has shown in his paper on 'Mathematical Concepts of the Material World' (*Phil. Trans.*, 1906). Definition of the fundamental spatial concepts—points, lines, surfaces—by means of the relation of 'inclusion' T, which is a generalised form of E_σ, so that the author obtains 'material points-T,' 'material lines-T,' and 'material surfaces-T'. The last section of the paper is on 'material points-T' and 'material segments-T'. A paper of the greatest possible importance.] **F. Colonna d'Istria.** 'La religion d'après Cabanis.' [The letter on primary causes which was written shortly before the death of Cabanis is considered by most of his disciples as a falling away from his principles, since he explained and justified the metaphysical and religious needs of humanity. However, the author shows that there are not any essential differences between this letter and the other parts of Cabanis's work.] **L. Brunschvicg.** 'Sur les rapports de la conscience intellectuelle et de la conscience morale.' ['The *values* of the moral conscience which are revealed to the inner man do not suffice to found "a system of things" . . ., and the *values* of science, abstracting as they do from *quality* and *liberty*, appear to be

incompatible with what morality spontaneously claims as an absolute. It is in these terms that it seems that the *alternative* presented itself to the thinkers of the last half of the last century. . . . We will inquire if in the actual state of our scientific knowledge and our reflexion on the sciences, the problem still presents itself to the philosopher under the same aspect ; and we will try to show how the progress of the criticism of the sciences, which has so visibly accelerated during the last twenty-five years, has insensibly re-established a kind of equality of level between our moral conscience and what might be called our *intellectual conscience*, in such a manner that the antinomy of its science and the system of morals to which previous generations have arrived has disappeared almost of itself by the sole fact of profound reflexion on scientific knowledge.'] **R. Hubert.** 'La théorie cartésienne de l'énumeration.' [On the theory of enumeration in the fourth rule of the *Discours*. The three first rules are quite clear, their meaning is illustrated, and the *Méditations* and the *Principes* furnish new illustrations. On the other hand, it is in the earlier *Regulae* in which the theory of enumeration is exposed. 'Intuition is a sure means, though an insufficient one, of knowledge ; and deduction, which is vitiated in its origin by the intervention of memory, is not enough to complete it. The function of enumeration is then determined : by enumerating and by making known to ourselves by comprehensive classification, by well-founded analogy, by perfect induction, all the simple elements, all the necessary relations of which nature is composed, it guarantees that a certain system of particular intuitions, that which constitutes science, reproduces exactly for us the reality of things.'] **G. Guy-Grand.** 'Impartialité et neutralité (Méditation pour le temps de guerre).' ['It is important not to confuse two notions so different as *impartiality* and *neutrality*. . . . Impartiality is the supreme rule of anyone who claims to know and judge by letting his thought proceed according to strictly critical methods ; neutrality is a refusal to take part which can only end in intellectual and moral annihilation. Let us not confuse Claude Bernard, legislator of the experimental method, with Pontius Pilate, patron of "neutrals".']

'Scientia' (Rivista di Scienza). Series ii. Vol. xix. Part 1. January, 1916. **G. Loria.** 'L'infinito e l'infinitesimo secondo i mathematici moderni anteriori al secolo XVIII.' [After a sketch of the emergence of science from the darkness of the middle ages, the author describes shortly and well that part of the work of Commandino, Maurolico, Stevinus, and Luca Valerio in which certain improvements of the method of exhaustion were given. Then the well-known work of Kepler (1615) and that of his defender, Anderson, are dealt with, and then a very interesting remark is made that considerations about indivisibles probably originated with Galileo independently of Kepler and owing to physical rather than mathematical questions. The works of Cavalieri, Fermat, Descartes, Pascal, Roberval, the British contemporary mathematicians, Newton, and Leibniz, are then shortly described, and a plea is made for the publication of all the manuscripts of Newton and Leibniz. Though the article does not go very deeply into the matter, it is a very able and important one.] **P. Lowell.** 'The atmosphere of Mars.' ['At the very foundation of our modern knowledge of the body next to us in space, the planet Mars, is the problem of its atmosphere. It might seem as if the atmospheric envelope of a heavenly body were one of the least things we should care to know about it. Our own air may not casually strike us as important. Yet without it all life, animal, vegetal and even mineral, so to speak, would stop and our earth roll a

dead, immutable ball through space. Not less would Mars. Now for the last twenty years we have been steadily acquiring knowledge about the Martian atmosphere. This knowledge has come both through the telescope and spectroscope, the latter relatively lately.' An account is given of the work of V. M. Slipher and Very. 'Each step has advanced us in knowledge of the Martian atmosphere, the improvement in the instrumental means enabling us with the mind's eye to approach nearer and nearer the planet. The facts successively revealed have corroborated those which went before in an even more conclusive manner than mere repetition could. For that stands the more securely detected of which the tallying details can subsequently be distinguished.' The spectroscope has corroborated the telescope's deduction, and states what the latter has shown must be inferred: 'the presence of water and the presence of oxygen, since vegetation without either were unthinkable, and yet the penurious poverty of both'. Further, the climate of Flagstaff, where the Lowell Observatory is, has proved to be very helpful: 'Many points about the planet which seem strange to the average inhabitant of the earth become comprehensible when one's surroundings take on the setting we have learnt must exist on Mars'.] **H. De Vries.** 'L'évolution des êtres organisés, par sauts brusques.' [From the experiments of Nilsson results that amelioration is produced *discontinuously*, and not as Rimpau and Darwin believed, by a slow and almost insensibly gradual process. These discontinuities are, it is true, small, but they are of the same order as the characters which separate varieties and species both in nature and in our classifications.] **A. Graziani.** 'Le future conseguenze economiche della guerra.' [There will probably be no radical change in social constitution, but certainly there will be a redistribution of riches, and that will have considerable economic effects. The author does not believe that there will be any great transformation in the commercial policy of the different countries after the war: England will still remain free-trade, and France, Russia, Germany, and Italy will still keep to the policy of protection, tempered by agreements and treaties concluded between different countries. Economic relations will by degrees lessen the hatred which the war has generated, and 'foreign commerce will continue to develop in spite of protectionist and particularist policy, by the side of internal commerce. To wish to reduce the former and merely to increase the latter is an anachronism and an absurdity.'] **A. Weiss.** 'Le droit international d'hier et de demain.' [In future, peace must be organised and protected against the enterprises of those who wish to disturb it. International law will be the law of peace; and this is the necessary aim of an evolution which began long ago. To show this, a sketch of the history of international relations is given. The conclusion is that all progress is vain and all reform sterile if the prescriptions of international law do not obtain the obligatory force and the effective sanction which have hitherto been wanting to them. Indication of possible means whereby such sanction can be brought about.] Book Reviews. Review of Reviews. Chronicle. French translations of articles written in Italian and English.—Series ii. Vol. xix., No. 2, February, 1916. **Th. Moreux.** 'Les "*Novae*" et la constitution de l'univers.' [Discusses the problem of the *Novae*, the apparent stars which appear suddenly at certain periods from the depths of the celestial vault.] **F. Bottazzi.** 'Le attività fisiologiche fondamentali. Secondo Articolo: L'attività muscolare.' [The paper includes an account of the author's own physiological work and views.] **A. S. D. Maunder.** 'Iranian Migrations before History.' [From passages in two of the old sacred books of Persia—the *Vendidad* and the *Tir Yasht*—the authoress deduces that they 'preserve the memory of two great pre-

historic migrations of the Iranians; first, their migration southward from within the Arctic Circle; and, second, their much later migration westward from the Punjab. And this continuity of memory is the more remarkable because the climate of the lands which the Iranians have occupied in historic times is in such strong contrast with the climates of which they have, nevertheless, retained so vivid an impression.' The deductions are from descriptions in the books mentioned, are of an astronomical or rather geographical nature, and are certainly ingenious. The authoress says: 'Since these descriptions could not have arisen from mere invention, or from logical deduction, they must have been derived from actual racial experience. The ancestors of the Iranians must have dwelt within the polar circle, even deep within the polar circle, and they must have found it a tolerable place of existence.'] **Ch. Gide.** 'Les dépenses de la guerre et leurs conséquences économiques.' [All the warring nations are spending enormous sums of money, and yet the war goes on. The explanation of this apparent paradox is simply that 'these expenses *are not paid*. . . . Up to the present at least these huge sums of money are phantoms; if they become solid it will only be later on.' The author proceeds to show how this is so. It follows that no one of the warring nations has anything to fear for itself with regard to the duration of the war,—and nothing to hope for from the enemy. There is another question about which the author makes some remarks: the economic side of the war from the point of view of steel, powder, and bread. Here again the author puts things rather paradoxically. 'We may define war, speaking economically, as an industry of luxury. At the present moment it is the only luxury which the belligerents allow themselves, and it absorbs all private luxuries. I do not believe that the number of men under arms is very much greater than that of men employed in normal times in non-productive work.'] **A. Loria.** 'Riflessioni e previsioni a proposito della guerra.' [The probable social and economic consequences of the war.] Book Reviews. [Among them of books by E. Guyot, W. J. Ashley, and B. Ischchanian on economic and social questions in England and Russia.] Review of Reviews. French translations of articles in Italian and English.—Series ii. Vol. xix., No. 3, March, 1916. **C. G. Abbot.** 'The Nature of the Sun.' [Composition and state as transmitter and receiver of energy, etc. The sun is giving off great quantities of energy without considerable return. 'Where does this radiant energy go to? Can we imagine space to be of infinite extent and the rays continually going on to wider and wider spheres? It seems probable that the path of the rays from the sun outwards is not infinitely great. There seems to exist in space a certain quantity of matter, perhaps partially gaseous, partially solid particles, which, though extremely sparsely distributed, still little by little absorbs the rays of light, so that in the course of a path which it may take light tens of thousands of years to travel, the intensity of a beam of light is at last reduced sensibly to zero. Apparently the final stage of things will be reached when by collisions and near approaches the mechanical energy of motion of all the stars shall have been converted into heat, and this by radiation and absorption shall be diffused until a uniform low temperature prevails throughout the universe. That this stage is almost immeasurably before us in the future is apparent. Many stars may never be rekindled by collisions, but may become dark and cold long before the final stage is reached. We have no reason to suppose that our sun will not be one of these.'] **E. Bouty.** 'La théorie cinétique des gaz. Ière Partie: Ses fondements.' [In a kinetic theory we must consider, besides visible motions, hypothetical and invisible motions of molecules, atoms, and electrons.

The modern kinetic theory of gases supposes : (1) Gases and material bodies in general are discontinuous ; (2) The molecules of gases are perfectly elastic ; (3) The walls with which gases are in contact have also the property of perfect elasticity with respect to the gaseous molecules ; (4) The gaseous molecules have motions of translation distributed at random in all directions. The kinetic theory can be perfected indefinitely so as to apply to gases which show more or less deviation from the laws of Mariotte and Gay-Lussac.] **L. Matruchot.** 'Le problème du cancer éclairé par la pathologie végétale.' [The discovery of cancers in vegetables and the remarkable results to which the study of them has led have thrown a great light on the question that has for long been asked with regard to man and other animals, as to whether cancer is or is not a parasitic disease.] **O. Jespersen.** 'Réflexions d'un Danois sur la guerre.' [It would seem that these reflexions on such subjects as the feeling for nationality, militarism, freedom of the press, and civilisation, are quite just. 'From the future peace, what we must hope for may be thus summed up : *Universal and real, sacred and inviolable respect for the rights of others.* As long as we have not got as far as that, we are still living in the age of barbarism.'] **C. Supino.** 'Le fonti economiche della guerra.' [Fortunately we cannot consume future wealth. The economic problem is very complicated, since we have to study not only how we can obtain the huge sums necessary for war, but also the variations in consumption brought about by it and their effect on production. A long article.] Book Reviews. Review of Reviews. French translations of the English and Italian articles.

IX.—CORRESPONDENCE.

To the Editor of "Mind".

Sir,—

Your reply to my note published in the last issue calls for further comment which I will make as brief as possible. It is exceedingly regrettable that those who are, presumably, interested in the advancement of philosophy should be side-tracked into the discussion of unprofitable personal issues. I am, however, obliged, in defence of my own personal honour and veracity, which certainly appear to be attacked by those parts of your original note not implicitly withdrawn, to make some additional remarks.

The question of abusive language appears to me to be worth little further discussion. Of course I do not admit that my language erred in any other direction than, possibly, undue restraint, but in the absence of positive evidence that anyone has taken serious notice of that passage I am passing on to the more important question of plagiarism. On that matter the casual reader might easily be deceived, and certainly he would carry away an entirely false impression of what I said. I had better, therefore, repeat what I actually did say, both in this journal and in the *Nineteenth Century*.

You, Sir, say that you have no concern with what was written elsewhere than in Mind. In that case I have said very little. My one assertion in Mind was that, *in the pages of the "Nineteenth Century,"* I had made the suggestion of plagiarism, and that the reply, also in the pages of the *Nineteenth Century*, did not satisfy me for certain reasons. The reasons for making the original suggestion were not mentioned in your journal at all. The reader was referred back to the discussion in the *Nineteenth Century*. I could not, therefore, either make a "serious charge" or substantiate it by "specific agreements so close and detailed," etc., etc. Nor did I indicate "wide divergence between myself and Dr. Mercier". How *could* I indicate agreement or divergence on the relation between methodology and science when the matter under discussion was the use of universals in reasoning? Certainly I *did* not. If, therefore, you adhere to your statement that your comments have reference only to what appeared in Mind, a complete and sufficient reply is that your statements (of course accidentally and unintentionally) are entirely untrue, and that the one statement made by me in Mind, namely that the matter of plagiarism had been mentioned elsewhere, is true and unexceptionable.

In view of the serious misapprehensions that are bound to arise concerning what was said, and the magnification caused by this discussion it will be fairer to all concerned to give the context of and the reasons for the original suggestion. The occasion of the dispute was an article by Dr. Mercier (February, 1915) on the relation between science and logic. The article in question combined a number of uncomplimentary references to a previous article of mine with the contention that it was the business of logical theory to correct the illogical ideas of the scientific world. This contention was supported by a number of examples from current science and particularly from medicine. Let me say at once that

there is no question of Dr. Mercier copying his examples. With regard to these, Dr. Mercier's statement was, in effect, that some scientific ideas are self-contradictory. I have expressed no opinion about the value of the examples, and, concerning the basis, I think all will agree that what is self-contradictory is not true.

The reply that I did make (*Nineteenth Century*, May, 1915) was that to combine untrue statements concerning the views of any writer with an adoption without acknowledgment of the special ground and standpoint which distinguishes that writer from other logicians was reprehensible, and laid the offender open to the suggestion of a form of plagiarism. For, although I should hardly express my contention so crudely as Dr. Mercier's article appeared to me to do, the direct bearing of methodology on science has been, as I said in the last number, my own special branch of work for several years. In general terms, I do not think either you or anyone else will disagree with my reply, only you appear to contend that the standpoint is not so distinctive as I assert.

This contention I think, on further consideration, you will find not tenable. Needless to say I am not concerned to deny affinities with Descartes, Bacon, Hobbes or other philosophers of past generations. I am entirely of the opinion that any real and original philosophic thinker, if such existed at the present day, would agree with me. But the fact remains that modern logicians, at least all with whom I have come in contact, do not agree. In support of my statement it will be sufficient if I say that I have had a dispute with Dr. Bosanquet on this very point (*Journal of Philosophy*, 17th January, 1911), also that the logician chosen to make the only reply that I am aware of to Dr. Schiller's criticisms on modern logic repudiated the idea in such terms as to imply that he spoke for the great body of logicians. (*Proceedings of Aristotelian Society*, 1913-1914, p. 191, paper by A. Wolf.)

Now let us come to the conclusion of the whole matter so far as it concerns Dr. Mercier. I do not think what I have said can rightly be described as a "serious charge of plagiarism". In any case the manner in which you state it conveys a false impression. Needless to say I have no objection to Dr. Mercier finding as many examples as he pleases, whether valid or invalid, of the falsity of scientific ideas. The only matter on which it is needful to be emphatic is that, for this time and generation, the special credit (if there be any) of contending in theory and indicating in practice the intimate concrete relation between logical theory and practical science belongs to my treatment of methodology, not to the *New Logic* or to any other work or writer. This statement I doubt whether Dr. Mercier will dispute, and, unless he does so, he is not on his defence for anything more serious than an error of taste and judgment. I have not at any time accused Dr. Mercier of a deliberate attempt to gain himself credit which is not his. I have no sufficient evidence for so doing. At the same time I cannot see that anything I said, either here or in the *Nineteenth Century*, was uncalled for in view of the false impression created both by his original article and by his rejoinder to me (*Nineteenth Century*, June, 1915) that that article was a development of the ideas of the *New Logic*.[1]

I am, Sir,
Yours faithfully,
H. S. SHELTON.

[1] [I am quite content to leave the disagreement between myself and Mr. Shelton to the judgment of the readers of MIND. I have never thought of questioning his "honour and veracity."—Ed. G. F. S.]

MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY

I.—THE MEANING OF "THE UNIVERSE" (1).

By Charles E. Hooper.

1. Some Apologies.

Probably most educated persons, including all who are not students of philosophy and some who are, would regard any offer to define the universe as manifestly foolish and presumptuous. As, in face of this conventional sentiment, I am proposing to make that very attempt, it will be well to offer a few apologies in advance.

In the first place, has not J. S. Mill taught us that we do not define the objects of our thought, as such, but merely the names by which we refer to those objects; ordinary definitions containing a covert assumption that something corresponding to the name really exists? If this be so, it is clearly no more arrogant to say in a dozen or a hundred well-selected words what we mean by "the universe," than to use these two particular words as though they truly meant something, as is commonly and confidently done.

While agreeing with Mill as to the main point, I have always considered him somewhat hard on definitions in describing them as *verbal* propositions. They are propositions which analyse names, but they do not analyse them otherwise than by referring to their objects, and these, *if* real, must give some objective truth to the definitions themselves. Moreover *verbal* frequently signifies the fact of consisting in words which do not evoke any clear mental references, or ideas; whereas a good definition is precisely that which creates a clear idea, bringing it into its true

relation to other recognised ideas, while focussing it on an object-matter of its own. It thus appears to me that, while we do not define the objects of our thought except in the sense of concisely describing them, we do define the ideas (and not merely the names) of those objects; ideas being identical with the human-subjective meanings of the terms we use.

Now the essence of every idea is its relation to some object-matter,[1] or thought-object, and my view is that we are justified in accepting the general validity of this relation of reference, as due to and confirmed by cumulative experience. In other words, any thought-object may be reasonably judged to be real, if there are no grounds for considering it to be either a voluntary fiction, such as artistic imagination creates, or an involuntary figment, such as springs from superstition or logical fallacy. Existential propositions are usually supererogatory, and this is clearly the case as regards that which affirms the existence of the universe. Of course one judges the universe to exist and to be real. A concise definition of the term would be "the whole reality to which our thoughts have partial access". The reader must not expect to be let off with quite so simple a formula as that, though I deem it good enough so far as it goes; but, whatever formula may here be offered, be it premised that no attempt is being made to define the universe, as such, but merely to define my own idea of the universe, which is, at best, an original combination of ideas current in scientific and philosophical thought, and may in that sense possibly arouse an agreeing idea in other minds.

If it be thought presumptuous merely to define one's own idea of so great and mysterious a thing as the universe, I would add that a sound definition is never more than an elementary description of something of which men may have a far more varied knowledge than the definition itself expresses. A school-boy can clearly understand the definition of a triangle—*i.e.* "a rectilineal figure having three sides"—long before he understands the varied properties and relations of triangles which Euclid and later geometers have brought to light, and some of which are possibly still to seek. Now the universe is immensely more complex than a triangle, and a definition of the universe, to be of any value, will have to be somewhat more complex than the definition of a triangle; yet, as in the case of a triangle, the ability to define the idea need not presuppose an adequate knowledge of the

[1] This point was discussed at length in a paper contributed by the present writer to MIND, October, 1915.

object. All human knowledge is about the universe, or about some of its contents or aspects, and all the sciences put together are inadequate to represent its full reality; yet a definition compatible with the most elementary data of the various sciences may be all that we need by way of a definition.

And, after all, philosophy has in practice always been trying to define the universe! So I will make no further apologies, but proceed to the business in hand.

2. A Definition of the Universe.

The universe *means* the totality of real thought-objects (or object-matters), considered under four related aspects, namely (1) as involved in the unity of Space, or the unbroken continuity of coexistent entities, including the ether and the great bodies and systems known to astronomy, with all minor objects existing on or about the earth or other spheres; (2) as involved in the unity, or continuous process, of Time, in the course of which all finite molar entities are constantly undergoing change, slow or rapid, some disintegrating and disappearing, and others newly integrating, while nevertheless there always remains the totality of coexisting bodies co-occupying Space; (3) as involving that variety in unity of Natural Characters, in virtue of which it is possible to regard real thought-objects, whether entities, materials, events, processes, features, qualities, magnitudes, or actual relations,[1] and whether physical or mental facts, as particulars having

[1] What I understand by actual relations are any relations which are not purely ideal. Purely ideal relations are of two sorts: (1) relations of likeness and difference (including mathematical equalities and inequalities) which, as being considered irrespective of the actual places and periods of the things that resemble or differ from one another, give rise to "universals," "contents," or "concepts"; (2) the relation of idea to object-matter, when the idea is purely contemplative and not accompanied by a sensation which indicates the actual presence of the object-matter. Actual relations, on the other hand, include (1) the comprehension, inherence, and coinherence of qualities in entities; (2) relations of causal sequence and real conditioning; and (3) accidental relations, or those which consist merely in the occupying of relative positions in Time or in Space, when there is no direct causal connexion between the matters thus related. The relations between the human sense organs and any object actually sensed, and between the sense-impression and the perceptual idea which it evokes, are actual relations, but contain the ideal element of conscious reference. It is not as exclusive of, but partly by virtue of, this ideal element that they may be classed as causal relations; since, whether or no they lead to practical action in regard to the object, they at least inform the mind and add to the store of registered experience on which future action or the future expression of knowledge may be based.

natures of their own, but natures agreeing in various specific and generic respects with the natures of other particulars; (4) as involving that unity in variety of Natural Causation, whereby the nature of every particular process or event is determined by the natures of antecedent processes and events, *plus* concomitant conditioning entities, the mode of determination, when ascertained, being called a natural law, and the more specific of such laws tending to explain particular occurrences, while being themselves capable of partial explanation by more general laws.

According to the above definition, the universe really *is* what modern astronomy shows it to be, though at the same time it is *more than* that. Whether or no it extends infinitely as Space and endures infinitely as Time, it at least transcends positive knowledge in both respects, and we have no right to assume a spatial boundary or a beginning or ending, when we can have no experience, and can form no clear conception of any such limits. But it is not only in respect of its stupendous magnitude and duration that the universe is more than astronomy reveals. Its ultimate material constitution remains essentially mysterious even to the ablest students of chemistry and physics, and, if we credit the astronomer with the most up-to-date knowledge of spectrum analysis, and of the inferred chemical and physical constitution of the celestial bodies, there are still contents and aspects of the universe which he purposely ignores. In pursuing his special study, he takes no interest in the diversified multitude of bodies intermediate between celestial phenomena and molecules, and including human beings themselves, with all the natural and manufactured things which move and rest on the earth's surface. Neither does he investigate the facts of his own consciousness, or ask how it is possible for the human senses and understanding to afford satisfactory knowledge of an objective universe.

3. What Would Kant Have Said?

In regard to the last question, the view of the universe here adopted is in some obvious respects anti-Kantian and also opposed to that modification of the Kantian "noumenon"—the Spencerian "unknowable". Time and Space are not viewed as forms of experience imposed by our own mental constitution on a phenomenal universe, but as conditions obtaining in a real universe, and imposed by that on ourselves; so far as Space is concerned, on our senses of touch and sight, and, so far as Time is concerned, on the whole current of our consciousness.

It is here important to note that what I understand by Space is not the generalised and idealised space of Euclidean (or any other) geometry, though that may be a valid means of interpreting it. It is the Space in which our own bodies, the earth, and the solar system move; the Space parts of which can be directly measured, and which, so far as terrestrial phenomena are concerned, is determined by distance and direction in relation to known geographical points of the earth's surface. Similarly Time does not consist in the general relations of concurrent, consecutive, and overlapping events, which occur at any and every part of Time. It is that unique and all-containing time-process of which the chronological scale applied to mankind's historically recorded career marks an integral part. The Space which forms one aspect of the universe is geographical-astronomical space, with its extension into the every-way remote, and the Time which forms one aspect of the universe is chronological time, with its ever-moving present based on its ever-growing past. It is in such Space and Time that all real thought-objects, whether conceived as things accessible to the senses or as states of consciousness accessible to memory,[1] have their inevitable place. It is the contrast of the fixed and measurable actuality of the relations of particular thought-objects in Time and Space, with the fluid and vaguely-imagined relations of the ideas of those same thought-objects, when not submitted to experimental tests, which lies at the root of the idea of reality itself.

In spite of the opinion of many modern thinkers, especially accentuated by Bergson, that there is something peculiarly subjective about the fact of duration, Time seems to me to be at least as objective as Space. It is certainly involved in the process of consciousness, but is primarily involved in the duration, movement, growth and decay of material objects occupying Space. If Space, as measured by the astronomer, and, incidentally, by the geographer, is objectively real in relation to the transient feelings of extension which accompany particular glancings of the eye or movements of the limbs, is not Time, as measured by the clock and the earth's rotations and revolutions, objectively real in relation to the vaguely felt duration of consciousness; the time which "flies" or "drags heavily" according to our personal mood when awake, and which disappears altogether when we sleep soundly?

[1] Although consciousness may be unextended, and its relation to the brain's activity only partly known, it is at least clear that it *takes place* just where the brain of the person who has it happens to be.

Although the view here advocated is anti-Kantian as regards the ideality of space and time, it upholds and makes more explicit Kant's important doctrine that space and time are fundamental to the categories of understanding, and are not merely categories themselves. Space is directly related to the activity of the chief sense-organs, and time to memory or to that comprehensive function of consciousness which Hodgson terms "reflective perception". Both are known by ideas which envisage their actual incidences in experience, and not merely by the general or conceptual ideas of extension and duration, which express their respective common qualities, but not their respectively unique continuities. It is perhaps needless to add that I accept Kant's central principle that our knowledge of reality must be according to our own psychological capacities. This is implied both in saying that the universe consists in real *thought-objects*, and that these thought-objects must be regarded under several different *aspects*.

4. The Meaning of *Thought-Object*.

We always and naturally assume that things exist and events take place beyond the range of our personal sense-organs, and even beyond the range of observation of any human beings; but we always regard these things and events *as though they did appear in actual human perception*. Some may question the propriety of calling matters which do not actually appear *phenomena*, but they are most certainly *thought-objects*. (*E.g.*, a familiar easy-chair in a probably unoccupied room may be a thought-object to one who is taking a country walk.) Thus, whether or no the realist is justified in assuming particular bodies to exist and act independently of human perception, such bodies are thought-objects to him, just as the "noumenon" is a thought-object to Kant and the "unknowable" a thought-object to Spencer. While it is quite possible, as Kant and Spencer show, to postulate a real thought-object of which we have no positive knowledge or distinct conception, it is not possible to postulate something which is not a thought-object at all. The attempt is self-contradictory, for we *do* think, however indefinitely, of the object which we pretend that we cannot think about. And be it remembered that what we call subjective facts, or states of consciousness, and the self or *ego* itself, are just as much thought-objects as any things assumed to exist physically. Crude sensations, emotions of pleasure and pain, and impulses to act, may be *felt*

as immediately present, but can never be *known* except as being reflected upon or becoming thought-objects. And, no matter whether we are materialists or spiritualists, monists or dualists, we must admit that the self or *ego* is something more than any passing notion formed of it; that is to say, it is known as the life-long object of the series of transient notions by which we become reflectively conscious of self, and not as any one such notion which can be actually and momentarily grasped by thought.

5. The Meaning of *Reality*.

It was said that the universe consists, not only of thought-objects, but of *real* thought-objects. What, then, makes their reality? My view is that everything real has place in the universe under each of the four aspects specified; but that the Space and Time aspects are fundamental, as especially marking the difference between reality, as such, and merely true idea. There is no necessary difference in conceptual content between the persons and circumstances appearing in naturalistic fiction and those referred to in sober history and biography. Both real and fictional persons are supposed to have organic bodies as well as minds, and to live, eat, and sleep, during particular times in particular places. The person in fiction may be more convincing than the literary portrait of a real person, which is all that history can give. What makes the essential difference is that the person who is only quasi-historical cannot be and is usually not intended to be identified as having lived in given geographical localities for a given period of historical time.

Reality can be only conditionally opposed to *appearance*, its true antithesis being *mental figment*. To be an appearance falling short of full reality is not to be unreal, unless such appearance counterfeits reality, or hides it in the sense of obstructing further inquiry into its nature. Of the thought-objects which we purely contemplate, the real ones must *appear* at least as forcibly as the imaginary ones; while that certain thought-objects may also appear to sense-perception is, for common sense, a special mark of their reality. A material object *is*, in a true sense, though at the same time, it is *not only* what it sensibly appears as. The object whose immediate presence is inferred from a certain sensation, visual or other, is usually recognised as belonging to some familiar class and having a *concrete* reality of its own, or being liable to produce in us a variety of other sensations under other circumstances. The inner

nature of such concrete reality is rendered more definite by science, which applies the microscope and the methods of physical and chemical analysis to the structure and material of things. There are here several sorts of appearances none of which is essentially deceptive. We must grant that no notion which accompanies an immediate sensation and refers to something appearing externally shows the whole reality of the thing which appears; but it does not at all follow that it deceives the mind with regard to that thing. If certain perceptions, such as those which seem to testify to the sun's movement or to the shape and position of objects distorted by refraction are essentially deceptive, these are the exceptions rather than the rule; and, while it required much scientific progress to prove that the earth moves, there are many cases of refraction and other illusory data which are easily discounted by common sense. A rustic, completely ignorant of the science of light, would not suppose that his stick which appears to be bent when plunged into clear water is really bent. Sense-perceptions in general may be said to be, not *deceptive*, but *partial*, appearances of objective particulars (material entities, or their qualities and relations, states and actions), which, in their turn, are real only as constituents or contents of the real universe to which they belong.

The immense majority of human illusions and delusions are connected with language rather than with sensation. These ideational figments are of two totally different sorts, fictional and fictitious. The creations of imaginative literature may, as was remarked above, be perfectly natural, and, if they cannot be said to be real, that is because they are at once quasi-historical and, in fact, non-historical. They as pseudo-objective are figments, but the ideas of them may be profoundly truthful illustrations of human experience. The general progress of intellectual and moral culture must, in fact, be largely due to works of imagination; since they enjoy a popularity which does not fall to the lot of philosophical treatises, and often enlarge the reader's ideas and judgments without purporting to do so. They widen human sympathies and may confer certain philosophic outlooks on minds not given to serious study; and, although this does not compensate for the absence of a systematic pursuit of truth, it at least raises the level of intelligence above that of a callous absorption in narrow personal interests.

The second sort of ideational figments are those which are contrary to nature, or to what we know of natural law; being appearances due to ideal combinations or separations of ele-

ments derived from experience, but which are not found through experience to be so connected or so disconnected as they seem to be in the fictitious idea. No one now doubts that a living centaur is a figment produced by artificial combination of natural characters; notwithstanding the wonderful realism with which the old Greek sculptors combined the outward anatomies of man and horse in a seemingly single creature. Neither does anyone doubt the imaginary character of Mars or Bellona or any other god or goddess specially presiding over war; the idea of a quasi-human person being here artificially combined with an artificially separated idea of war in itself. The general condition and characters of war may indeed be logically *distinguished*, but cannot be logically *separated*, from all particular military actions of all warring groups of human beings. Of legendary beings still believed in by large groups of mankind, and of fictitious entities which may at times appear to be real even to modern thinkers, it is here needless to speak; since my purpose is not to controvert any particular ideas and beliefs, but only to show that certain non-natural figments must be recognised as constituting a logical class of pseudo-realities, from which natural thought-objects have to be sharply distinguished.

The abstract concept of reality may, I think, be summed up in the three following propositions:—

(1) Every idea, in its momentary presentation to the mind, appears to be related to some thought-object, not simultaneously or at least not simultaneously and completely presented.

(2) If the relation in question be only apparent, the thought-object is a figment.

(3) If the idea be truly related to the thought-object as being connected with other ideas in a manner symbolising the connection of the thought-object with other thought-objects in the universe, the thought-object in question is real.

The first of these propositions is founded, as I take the laws of formal logic themselves to be, on intellectual experience; that is to say, on repeated facts of thinking, considered as process-contents of consciousness.

The second and third propositions involve the postulate of experiential philosophy; namely, that knowledge cannot be based on the experience of thinking alone; since thought is constantly tending to produce verbal or poetical figments. The evidence of the senses, and, contingently, that of the emotional and conative feelings, must be sought and sifted, as regards that larger part of reality which is not purely

intellectual, though solely approachable through intellect,[1] as co-ordinating those non-intellectual contents with which it is psychologically bound up.

As the only antithesis to reality is figment, or apparent reality which is in fact unreal, it follows that reality, as such, admits of no degrees. There are all degrees of truth and knowledge, or of perspicacity of notions and extended relatedness of scientific judgments. These are indeed mental realities, but they never constitute their own object-matter whose reality is in question.[2] The most insignificant particular object is as real as the whole universe, provided that it is viewed in its true relation to other things. (I need hardly quote Tennyson's well-known lines on the "little flower".) The most abstract quality or relation is as real as the most solid body, provided that it is conceived as belonging where it does belong, and not as constituting a metaphysical entity, or existing on its own account. Form and structure are as real as matter and energy, provided they are not artificially separated from matter and energy. On a similar condition the conscious experience of the living person is absolutely real in its own way, though the notions which form parts of it may or may not refer to real object-matters.

6. On Formal Definitions of the Universe.

In view of the foregoing analysis, it would be possible to offer a *formal* definition of the universe. We might say that the universe is *a real thought-object which contains all other real thought-objects in their manifold relations.* This places the universe in the third remove from the supreme logical genus of thought-objects, which includes figments, and in the second remove from the supreme natural genus of real thought-objects, which includes finite things. The universe thus appears as a unique species of two logically higher genera; its differentia being its reality, in the first case, and its supreme comprehensiveness, in the second. It might be legitimately put at a still further remove from the supreme genus: for real thought-objects may be divided into those which are *self-significant*, in the sense that they do not derive their significance from referring to realities other than

[1] Understood to include common sense, working through implicit ideas and judgments, as well as the conscious processes of science and philosophy.

[2] *Cf.* the present writer's article in Mind, October, 1915, particularly section 11.

themselves, and those which, like (subjective) ideas, signs and representations of all sorts, are *symbolic*, or do derive their significance from referring to other things. Now it is clear that the universe is a self-significant and not a symbolic thought-object; so that the formal definition might run *a real and self-significant thought-object, which contains all other real thought-objects, both self-significant and symbolic.* The *containing* here referred to is of course by way of real Space and Time, not of categorical subsumption, so that the universe is less than the logically-extended genus of thought-objects by (1) figments; (2) finite thought-objects; (3) symbols. In *fact* it contains (2) and (3), but in *nature*, being infinite and self-significant, it excludes them. This, or any other formal definition of the universe, can only illustrate the mind's prerogative of ideally taking the All to pieces, and counting the bits of the great puzzle side by side with the puzzle which has somehow put itself together. It is a case of viewing the universe in the way of logical analysis, which, so far as the analysis has an objective correlate, is the aspect of Natural Characters. But this is only one of the four aspects of the universe postulated in my former definition, which I therefore still prefer. Let us then revert to these aspects; first, however, giving some consideration to the meaning of the word *aspect*.

7. The Meaning of *Aspect*.

The sense of sight is properly concerned with tangible or quasi-tangible objects, and not merely with those visual appearances which the graphic artist can accurately reproduce. Experience of environment consists largely in repeated conjunctions of visual with tactual sensations, whereby the child gradually learns to estimate, in a rough common-sense way, the actual sizes and distances of common objects from their relations in a field of vision. What, however, is of equal importance to the forming of a true idea of some physical object is that we intuitively combine in the mental image various different visual presentations which the object had at successive moments or at intervals of time. Certain small objects, such as a plucked flower or a coin, are turned about in our hands while we examine them with our eyes. Larger objects, like public buildings, trees, or statues, may be viewed from various sides as we walk round them. Fellow persons with whom we are often associated are seen in a multitude of different ways due to the facts that we occupy certain positions or make certain movements in rela-

tion to them or they in relation to us, or that they assume different postures and perform different actions while our eyes are upon them. Thus common objects are presented to the sense of sight through a multitude of different *aspects*, under some of which they appear so different from what they do under others that we should hardly believe the object to be one and the same, had we not the direct evidence of vision that it continues in its own place or line of movement while these successive aspects are presented to us.

The only sort of visible object which does not thus necessarily appear under a variety of visual aspects is an apparently perfect sphere, having an apparently uniform texture and coloration of surface. This consideration may help to make clear to discursive reason what is already sufficiently clear to common sense; namely, that when a visible object has various aspects, these, though partly due to differences in our points of view, are at least equally due to characters which belong to the object itself. In so far as the shape of a body departs from sphericity, and in so far as its surface (or, if transparent, its visible interior) is variegated in any manner, its varied aspects in relation to our sense of vision belong to it quite as much as to our mode of perceiving it. Thus a detached church or other building, as observed externally from the four points of the compass or from any intermediate stations, has various aspects which are as certainly necessitated by its own architecture as by our sense of vision and point of view.

It is a long step from the visible aspects of a building to the thinkable aspects of the universe; but I hold that we are justified in carrying over the concept of *aspect* from the narrowest to the widest sphere of apprehension. We must, however, consider certain intermediate spheres by the way. Visible aspects, as above described, stand midway between the primary and secondary qualities of visible bodies. So far as they depend on the actual forms of those bodies, they are allied to primary qualities. So far as they depend on special points of view, and involve the sense of colour, they are secondary. But all qualities themselves, whether primary or secondary, are what may be called *predicable aspects*. They are aspects in relation to the "mind's eye," or the idea of the object in question, which unites the various sensuous impressions derived from it. Just as, in the case of a public building, we pass from one to another point of view, and mentally unite the various aspects thus presented, so, in the case of an orange, we may pass from observing it as it lies in a fruit-dish, to touching, grasping, and handling it, smell-

ing it, noting the sound of it when dropped, and, finally, to peeling, dividing, and eating it. Although the orange itself will then have disappeared, we shall have had various experiences which we can only explain as aspects of *it*, or refer, as potential aspects, to other individual oranges. All these aspects were presented to our personal sense-organs, but, in the case of the handling, peeling, dividing, and mechanical operation of eating the orange, we were up against its primary qualities; while, in seeing its orange hue, feeling it as cool, noting the dull sound of its fall, smelling and tasting it, we were sampling its secondary qualities only. These belonged to it solely in relation to our specialised sense-organs in their actually personal, though inferably common-to-all-men functioning; but we might see, as external facts, the actions of handling, peeling, dividing, and eating an orange, on the part of another person, or, possibly, of a sufficiently cleverly constructed automaton. When we see an outside actor thus engaged, there are aspects of two or more objects not merely presented to our sense of sight, but viewed in relation to one another and as evidently external to ourselves. There is the person's right hand grasping the knife, while he holds the orange in his left, and the spiral coil of peel is gradually detached. This is only one of multitudinous instances in which objects known by their subjective visual aspects are perceived in objective relation to one another. Such relations depend of course upon the matter and energy, but depend also and more obviously upon the shape, size and position, of the objects related. That one object in a field of vision is at once separate from and contiguous to others is the visible mark of its individual reality; while the partly observed and partly inferred geographical relation of objects in a field of vision, or a series of such fields obtained in moving from place to place, constitutes the reality of terrestrially-determined space. Hence we pass, by what may be properly called scientific imagination, to the sphere of quasi-visible objects which are not actually visible; namely, to large tracts of country or sea and the earth itself, which are at once too vast and too near to any human observer to be viewed as wholes; also to the chemical and ultra-chemical particles of matter which are too minute to be viewed at all; also to the place of the earth among the bodies of the solar system and the far more remote stellar systems. But having thus arrived at a conception of the universe of Space, we are again envisaging an aspect through a relation and not any relation external to ourselves. The universe cannot, like a

finite object, be actually related to some fellow object. It is as related to the mind or system of subjective ideas that we know all that it is possible to know about it.

8. The Aspects of the Universe.

If space and time were simply subjective forms of apprehension, there could be no universe, as the term is generally understood. Both are inseparable elements in the nature of what is known, through astronomy, geography, and history, as the universe. The idea of space as a vacuum in which ultimate material particles move may be subjective, and due to the common experience of seeing visible bodies move in an invisible medium. It *may be* not merely subjective, but positively illusory. Assuming, however, that physical reality is a plenum, that plenum has an aggregate extension, and that extension *is* Space. The idea of time as an underlying continuum, which includes the vacant future as well as the occupied past, is comparable to the idea of space as an ultimate vacuum. It also may be subjective and even illusory; for the future is never reached, but only the present which formerly appeared future. Assuming, however, that the universe consists and has always consisted of entities undergoing processes, these must have had an aggregate duration up to the presently passing moment, and that duration *is* Time. In these senses at least Space and Time are aspects of the universe standing, in relation to our own feeble and fluctuating notions of them, as cosmic realities. Their reality remains necessarily correlative to some ideas, but it is more adequately symbolised by the more systematic ideas of those who have seriously investigated the object-matters of astronomy and scientific chronology; ideas to which a sound education must tend to make the common-sense ideas of the child conform.

If the given definition be accepted, it is no more impossible, though it is of course more difficult, to attain a relatively correct idea of the universe than to attain a relatively correct idea of the simplest material object. Each has various predicable aspects, which may not be simultaneously present to the mind, though the recognition of its reality demands that they shall not be lost sight of. The universe is connatural with any finite body in possessing the aspects of extension and duration. Since, however, its extension and duration have no known or conceivable limits, it cannot have any of those multitudinous predicable aspects which depend on the separation of a finite body or system of bodies from its natural environment, and which

include the integration and disintegration of any particular material entity, unless it should be an ultimate and indestructible particle. But while the universe necessarily lacks the various aspects of individual things or systems, other than those of duration and extension, it possesses the two supremely important aspects, which only it can possess, (1) of containing the whole system of natural classes and characters, or "universals," so far as these have real logical extension, or are actualised at any times and places, and (2) of involving the whole process of natural causation whereby entities and types are produced and reproduced. Granting that in these two important aspects, and especially in the latter, or causal aspect, the universe is still most imperfectly known, it is none the less at least known to have these aspects, as well as the aspects of Time and Space.

Of the four modes in which the universe may be apprehended, Space and Time may be classed together as *coincidentals*, while the systems of Natural Characters and Natural Causation may be termed *coessentials*. Space and time have indeed general characters of their own; those of space being discussed by geometry, and those of time being summed up in the few possible abstract relations of two events—coexistence, succession (with or without an internal), and several sorts of overlapping relation, in which coexistence and succession are combined. It has already been pointed out that it is not these general characters of time and space which constitute the indefeasible *unities* of Time and Space, in which are determined the actualities of all entities and events. Particular realities do not merely occur at *some* time and place, but each occurs at *that* or *its* particular period in a unique chronological sequence, and at *that* or *its* particular place (or connected series of places) on the earth's surface or in the celestial expanse known to astronomy. It is thus owing to the coincidental aspects of the universe that things are real otherwise than as they may appear to be real in naturalistic fiction. All real particulars have *historicity* of their own, though very few are humanly recorded. But, if naturalness alone does not suffice to constitute reality, it is equally evident that occurrence at given time and place would not constitute reality if that which occurred had not a nature at once distinguishing it from and relating it to surrounding or preceding things or events. This might not be always true if the universe could be properly conceived as having once been a single and absolutely homogeneous continuum of occult material from which the manifold of natural reality has evolved. In that case we might in pure imagina-

tion divide the supposed material mathematically by planes at right angles, somewhat as the earth's surface is divided by lines of latitude and longitude, and the part which fell within any one of the resulting cubes would be given by us a place and ideal reality of its own ; but this is totally unlike the real occupancy of space by a body whose surface meets the surfaces of surrounding bodies, or of a surrounding body, different in matter or form from itself. If we suppose either discrete particles, or modifications (such as vortices or centres of condensation) of the ether, to be the material basis of the universe as we know it, each of these minute entities must have a form of its own differentiating it from the medium in which it moves and therefore from all fellow-corpuscles of like character but separate location. That the universe itself has ever evolved from an ocean of ether or of primal particles appears to me a very fanciful, though of course not a disprovable, hypothesis. Astronomy points to the existence of stellar systems in all stages of growth and decay, and it is more reasonable to suppose that the universe itself is eternally varied and varying in its numberless parts, while each stellar system evolves from a relatively homogeneous "fire-mist," than that the appallingly negative idea of infinite and absolute homogeneity ever had an actual counterpart.

While from one point of view the four aspects of the universe fall into the two pairs, which have been classed as *coincidentals* and *coessentials*, from another point of view they fall into two other pairs which may be termed *static* and *dynamic* aspects respectively. The modes of Space and of Nature as classifiable are both static; these being correlative to the dynamic modes of Time and Causation. They are, however, not only correlative, but, in a sense, subordinate ; since Space is in Time rather than Time in Space, and the nature of things is dependent on the mode of their development in Time, rather than on the ultimate differences of character of which classification takes note.

The idea of the absolute co-occupation of Space by ether and all coexisting bodies at a given instant of time is in a sense artificial. It makes the same sort of arrest in the universal process that a physicist makes in imagining a continuous movement at different points, or a naturalist in depicting an organism at different stages of its growth from the ovum. While such ideas exclude duration by reducing time to an imaginary instant, the great hierarchy of natural classes or Platonic "ideas" seems to transcend all duration, in that, while the individual instances come and go, the types within types—at least the more generic of them—

remain. This hierarchy is a figment, if taken, as the neo-Platonists took it, as enshrining ultimate reality; yet it remains a valid aspect of the universe, when every lowest species is understood to have a real-logical extension, or to consist in particular instances appearing at particular times and places, and then and there *having* the qualities (predicable aspects) in virtue of which they are classed together. It must always be remembered that the distribution of the instances of a real species or real genus in Space is extremely irregular, and quite unlike the symmetrical aspect which genera and species have in a scheme of classification, and, incidentally, on the shelves of a museum. No doubt the mode of segregation—that is, the being or gathering together of like units—plays an important part in nature; but all segregated groups are parts of a larger grouping which is heterogeneous and chaotic, and especially so as regards the minerals, waters, plants and animals which spread themselves in and on the earth. Most *collocations* of bodies in terrestrial nature are anything but *systems*, and chance largely rules in the sense that bodies are brought together, not by any law of convergence analogous to gravitation, but by each pursuing its own path on the earth's surface, until the collision or near approach of two bodies causes some natural interaction to occur.[1] The movement of each is no doubt due to its own nature in relation to its own circumstances, but the contingency of the two meeting is not a natural necessity; being in no sense comparable to any mechanical, chemical, biological, or human social interaction which may result when the meeting actually takes place.

[1] I have discussed this point at some length in the final chapter of a small treatise entitled *Common Sense: An Analysis and Interpretation* (Watts, 1913). A psycho-physiological theory which may be worthy of consideration is that association of ideas, on its neural side, takes place through a similarly contingent meeting, not of course of things, but of vibrations proceeding from separate centres of the brain; vibrations which may or may not succeed in producing a combined effect.

(*To be continued.*)

II.—MORAL SENSE, MORAL REASON, AND MORAL SENTIMENT.

By E. W. Hirst.

It is matter of general agreement that we approve or disapprove of conduct. It is, also, usual to ascribe such functions to a 'Conscience'. As, however, controversy upon the psychology of Conscience has just been revived, especially by Dr. Hastings Rashdall, it is desirable to see how far recent discussion has cleared the issues and helped towards a satisfactory solution of the problem.

I.

There is, at the outset, the well-known doctrine of the Æsthetic Intuitionists that we distinguish the ethical nature of actions by means of what they sometimes speak of as an inner 'Sense,' called by Hutcheson a 'Moral Sense'. By this comparison of Conscience to a 'Sense' it was intended to emphasise the immediacy and ultimacy which are often found in moral judgments. Nor can it be denied that, in proportion as character is mature, there is apparent in ethical deliverances just that immediacy and ultimacy to which the school drew attention.

But almost from the very beginning this doctrine of a Moral Sense has been subjected to criticisms now quite familiar. It has been pointed out that the activity of a sense is mostly special in kind, implying differentiation of organs with appropriate functioning, whereas the moral consciousness has cognitive, affective and conative aspects which indicate that the mind as a whole is at work.

It must, however, be conceded that the term 'sense' was badly chosen to express the teaching of the pioneers of the school. Indeed Shaftesbury regarded this moral 'Sense' as more than a power of observation, as even a Spring of action, as a 'kind of Affection towards Affections,' and as provoking in a man 'concern' for the good or ill of the species. Such functions, it is, of course, impossible to ascribe to a mere

sense. Moreover, Hutcheson allowed that this 'Sense' could be trained, much as musical taste is developed by cultivation. Indeed the real view of the School is more accurately represented by the idea of a Moral Taste; and Shaftesbury declares that this so-called Sense 'feels the soft and harsh, the agreeable and disagreeable in the affections, and finds a foul and fair, a harmonious and dissonant, as really and truly here, as in any musical numbers or in the outward forms and representations of sensible things'.[1]

Dr. Rashdall, in his recent book, *Is Conscience an Emotion?* appears to us scarcely to do justice to the real teaching of this school. We cannot find, as he declares, that either Shaftesbury or Hutcheson held that moral approbation was 'simply a particular sort of feeling or emotion'.[2] There is, on the contrary, distinct recognition by these writers of the cognitive aspect of moral experience. The Moral Sense was operative, they said, only so far as a man could 'think about' his actions. 'If a creature be generous, kind, constant, compassionate; yet if he cannot reflect on what he himself does, or sees others do, so as to take notice of what is worthy or honest; and make that notice or conception of worth or honesty to be an object of his affection, he has not the character of being virtuous, for thus and no otherwise he is capable of having a sense of Right and Wrong.'

Hutcheson even went so far in his recognition of the intellectual character of the Moral Sense as to hold that it supplied 'justifying reasons' for action, although such justification was not of a discursive nature, but depended upon 'some immediate disposition or determination of soul'.

Nor do we follow Dr. Rashdall in his further criticism that 'on the moral sense view there is simply no meaning in asking which of the disputants is right and which is wrong. A colour-blind man is not wrong when he sees no difference between a red light and a green one. . . . Mustard is not objectively nice or objectively nasty. It is simply nice to one man and nasty to another, and that is the whole truth about the matter. . . . If morality were a mere matter of feeling or emotion, our moral judgments would be in exactly the same case.'[3]

Now both Shaftesbury and Hutcheson were aware of the lack of uniformity in moral judgments, and Hutcheson especially urged that the moral 'sense' could be trained like

[1] *Characteristics*, ii., 29.

[2] *Is Conscience an Emotion?* (Fisher Unwin, 1914), p. 3; *cf.* also, *Theory of Good and Evil*, vol. i., p. 149.

[3] *Is Conscience an Emotion?* p. 31.

musical taste. Shaftesbury in his *Rhapsody* is at pains to point out, in answer to objectors who say that right and wrong are mere matters of opinion, the extravagance and absurdity of their objections, and remarks that 'all own the standard Rule and Measure, but in applying it to things, disorder arises'.

And these admissions do not necessarily compromise the 'objectivity' of moral distinctions when once it is realised that they are 'sensed' in a quasi-æsthetic manner. Doubtless, there is no appeal beyond sense when sense is physically understood and the immediate experience alone regarded. If a food tastes nice, so far it is nice. But this is scarcely 'the whole truth about the matter'. For there is a certain 'objectivity' even in matters of physical taste. It is commonly agreed that mustard is yellow and pungent. Anyone who said that mustard was purple would be regarded as 'colour-blind,' and the very idea of colour-blindness is a testimony to the existence among men of a certain normality in physical vision. Dr. Rashdall himself goes very far in this direction when he admits that 'it may indeed be contended that there is an æsthetic, and, therefore, an objective element even in gastronomic matters. If so, we must substitute some pleasure of a still more purely sensuous type.'[1] But is it possible to find a pleasure so 'purely sensuous' that it is destitute of any objective element? If it is to be identifiable at all, it must have objectivity.

Objectivity is still more clearly traceable in judgments of art. In spite of the diversity of opinion as to what in particular is beautiful, the appreciation of beauty is no merely subjective experience. A particular poem or picture is beautiful, not simply because some one has said so. No doubt the opinions of connoisseurs are influential and supply guidance. But the beauty of an artistic object never rests on the mere *ipse dixit* of the critic. There exist canons of beauty. And it is always assumed that the critic could justify his judgment by reasons capable of making an objective appeal. In a Note[2] Dr. Rashdall admits, as he had done in his larger and earlier work,[3] that the æsthetic judgment may be objective, but goes on to say, incorrectly as it seems to us, that 'this is not recognised by those against whom I am arguing'. Surely the 'Moral Sense,' as above understood, may possess an objectivity similar to that of æsthetic judgments, and compatible with diversity in indi-

[1] *Theory of Good and Evil*, vol. i., note, p. 146.
[2] *Is Conscience an Emotion?* p. 172.
[3] *Theory of Good and Evil*, note, p. 178, vol. i.

vidual opinion. And we have the interesting statement of Shaftesbury that virtue is 'really something in itself and in the nature of things: not arbitrary or factitious . . . constituted from without, or dependent on custom, fancy, or will: not even on the Supreme Will itself, which can no way govern it: but being necessarily good, is governed by it, and ever uniform with it'.[1]

Diversity in individual opinions compromises neither the 'impartiality' nor the 'consistency' of moral judgments. Their impartiality and independence of individual opinion may not, and does not, prevent actual differences of individual view due to personal circumstances and causes. And as for the criterion of 'consistency,' no doubt the verdicts of the colour-blind disagree with those of the normal-sighted, but such disagreement does not disprove the existence of normality in human vision, but only shows its possibility of perversion in the case of some whose organ of sight is judged peculiar. Nor is the apparent inconsistency of moral judgments due to different verdicts on the same case. Absolute inconsistency could be established only where the cases were proved to have been regarded in strictly the same way. But such proof is impossible, if for no other reason than that in concrete experience cases never are precisely the same. To expect such a state of things would be to demand in the sphere of human activity a uniformity which is quite unsuitable, because mechanical. It is to be remembered in passing that Adam Smith tried to correct those diversities of judgment in the 'Moral Sense' which are due to the partiality of thought caused by the agent's self-love, by his doctrine of Sympathy with the judgments of an ideal and impartial spectator. But it does not seem possible to do away altogether with all instances of diversity. Some of the so-called 'inconsistencies' are natural and inevitable. Nor does Dr. Rashdall obviate them by his own theory of Conscience.

There is, however, one grave weakness in the Moral Sense doctrine. As has often been indicated, it does not sufficiently secure the 'authority' of morality: it does not differentiate the Moral from the Æsthetic judgment in respect of the quality of obligation usually ascribed to the former. Shaftesbury, indeed, makes little difference in this respect between the two kinds of 'knowledge'. In the *Inquiry* he writes: 'When we say, therefore, of a creature that he has wholly lost the sense of right and wrong, we suppose that being able to discern the Good or Ill of the species he has at the

[1] *Characteristics*, ii., 267.

same time no concern for either'. Shaftesbury does not sufficiently elucidate this element of 'concern' as distinguishing the moral consciousness. But it is an experience of this kind, an experience of constraint, which is an essential characteristic of the ethical, as it is not of the æsthetic, judgment. The term 'Sense' suggests rather 'passivity' (not absolutely so, of course), though, as expounded by Shaftesbury, the 'Moral Sense' is a spring of action, a strong motive, and a bias of the nature towards conduct of a particular kind. Of course, those whose æsthetic taste is bad will feel more or less 'constrained' by the antagonistic judgments of their fellows who accept different canons or come to different conclusions. In the same way, too, those who are not normal in their moral taste will in some way be 'constrained' by the pressure exerted by a different ethical fashion.

But when all similarity between the two types of judgment has been allowed for, it will be found that the 'obligation' to cultivate correct views on art essentially differs from the duty of manifesting right conduct. For correct æsthetic opinions seem to depend on a certain involuntary factor, on 'a kind of mental capacity';[1] and this fact considerably modifies their obligatory nature. Moreover, the obligation to a right æsthetic taste primarily regards the intelligence, whereas that of the moral judgment exercises a direct constraint over the will. Accordingly, moral judgments deal with the regulation of life as a whole, and have to decide what place the cultivation of art and the formation of a good æsthetic taste shall take relatively to that whole. Thus moral obligation is of an absolute kind; its authority is complete and supreme. We say a man 'ought' to do right as we do not say he 'ought' to think correctly about art; nor do we blame those whose æsthetic judgment is at fault as we condemn those whose conduct is bad.

Shaftesbury, it is to be admitted, has little to say respecting the 'claims' of the Moral Sense when these are no longer presented by sheer strength. For one thing, he overlooked the power of the 'self-affections' and their tendency to assert themselves to such an extent as to disturb the 'balance' of the passions. He, therefore, is practically silent about the need for self-denial and the obligatoriness of virtue.

And yet, in the discovery of moral 'authority,' is it possible on merely psychological lines to get much further than the Æsthetic Intuitionists reached? Sooner or later, the mind must arrive at what, for direct experience, is simply

[1] Rashdall, *Theory of Good and Evil*, vol. i., p. 183, note.

an ultimate value. Indeed, it is interesting to see that Dr. Rashdall, 'rationalist' as he is in his psychology of conscience, coincides in this view. 'We have no reason for believing anything,' he says, 'except the fact that we cannot help believing it.'[1] He also observes that 'the existence of a distinct category of moral obligation or value must be a matter of immediate consciousness'.[2] Duty is duty, he insists, simply because it is 'an inexpugnable notion'.[3] Even Butler, the champion of the magisterial function of conscience, does not proceed far beyond this point. He does no more to secure the authority of conscience than by naming it 'a principle of reflection' whose 'superiority' is self-evident, and whose supremacy is 'natural'.[4] In other words, 'he gives a mere psychology of the moral life. . . . He is willing in the main to rest in the immediate and authoritative approval of conscience, without investigating the object of its approval or the basis of its authority.'[5] Surely, as a matter of immediate experience, this seems all the authority that can be got. It is, however, not all the authority we need, nor all that is obtainable. Indeed, both Shaftesbury and Hutcheson confess that the 'authority' for the Moral Sense must be shown elsewhere, by having recourse to a law outside that given by human nature, *i.e.*, to the law of a Divine Superior promulgated with sanctions of reward and punishment. Hutcheson, in particular, remarks that the Moral Sense needs 'corroborating' by religious belief, and that 'the word "obligation" is sometimes taken for a strong motive of interest constituted by the will of some potent superior to engage us to act as he requires'. This seems to base obligation on the constraint exerted by the hedonistic motive. But he goes on to say: 'In describing the Superior who can constitute obligation we not only include sufficient force or power, but also a just right to govern: and this justice or right will lead again to a moral faculty'. In such a passage, Hutcheson seems to realise the need for a justification of the alleged (by him) magisterial function of the Moral Sense which in his *System of Moral Philosophy* he affirms to have 'a dignity and commanding nature of which we are immediately conscious'—a statement, however, which, being written several years later than Butler's *Sermons*, may reflect their teaching.

So much, then, may be said regarding the School of Moral Sense and its view of the objectivity and authority of moral judgments.

[1] *Is Conscience an Emotion?* p. 39. [2] *Op. cit.*, p. 94.
[3] *Ibid.*, p. 39. [4] *Sermon on Human Nature*, ii.
[5] Seth, *Ethical Principles*, 9th ed., p. 177.

II.

It is necessary, in the second place, to examine the views of those who regard Conscience as essentially Rational or Intellectual in nature. These views have been most recently urged by Dr. Hastings Rashdall, whose lectures and published works have placed all students of ethics under lasting obligation, and whose contributions to the psychology of Conscience, in particular, deserve the fullest respect and the most careful examination. Nevertheless, the writer finds it difficult to accept his teaching on the nature of Conscience as it is developed in the chapter on 'Reason and Feeling' in the *Theory of Good and Evil* and latterly in his book *Is Conscience an Emotion?* Dr. Rashdall strenuously maintains that only as moral judgments are the work of Reason can their objectivity and authority be assured. Reason, he says, enunciates for our moral guidance certain axioms,—which turn out to be those maxims of 'Equity' and 'Rational Benevolence' of which Sidgwick makes so much use in his *Methods of Ethics.* But no sooner have these been mentioned than the author admits that they are only quantitative principles, and have no direct relation to conduct: they concern only the distribution of 'good' after its nature has been otherwise determined. Whether such quantitative maxims are of any primary and essential importance in Ethics is closely connected with the question as to the nature of 'good'. If they are given such an importance they demand, at least, that good shall be quantitative and measurable. The axiom that the greater good ought always to be preferred to the less is really inapplicable save as goods are commensurable both within the life of the individual and also as between the individual and the community. Any qualitative differences of good must be expressible in terms of quantity. Other individuals, also, become of no more significance than to supply additional units to the aggregate of good. Even the axiom of Equity that 'one man's good is of as much intrinsic worth as the like good of another' becomes cogent in itself only as 'like' means 'equal quantities of'.

This attempt to make a rigorously quantitative application of the axioms to Ethics reveals, we think, its own irrelevance. The axiom of Equity, for instance, which regards of equal worth equal quantities of good in the lives of different men, allows no authorisation of the act whereby a man in battle gives his life for his neighbour and thus, so far from 'equating'

or merging his 'good,' negatives and eliminates it.[1] Neither does the axiom show any relation to the real crux of the ethical problem. The individual is prone to prefer his own 'good' to that of others, not because it is quantitatively superior, but really because he has a bias that leads him to exalt himself and subordinate the claims of the rest of society. This is a qualitative experience of superior worth, and no merely quantitative considerations can show it to be unreasonable. For it is a case where the 'part' is supposed greater than the 'whole'; in other words, where the individual uses society as a means to his own ends.

Dr. Rashdall seems at first[2] to contend for this rigorously quantitative application of the axioms, though he afterwards appears to shrink from it. He says later that 'goods' are commensurable 'only for the purpose of choosing between them'. He instances the case of a man's having a sum of money to spend, and being in doubt as to whether it is best spent on Churches, Colleges, or Hospitals. Strictly speaking, on Dr. Rashdall's view, the man's duty can be decided only by statistics of results. What is more is that any man having the same sum of money to give must allot it in the same way. Duty, if it differs at all, does not differ for individuals, but only according to the amount of substance to be used or energy to be expended.

Now if 'goods' are commensurable 'only for the purposes of choice,' such a condition would not appear to be more than a practical limitation. There does not seem anything in such a condition to forbid their being really commensurable at any time; and, in spite of what Dr. Rashdall says, there does not appear to be any reason why 'a certain amount of one good should not be regarded as a sufficient and satisfactory substitute for another,' much in the same way as a sovereign may be expressed in paper, gold, silver, or copper.[3] Which form value takes would then seem to depend on 'taste'—in which case the teaching in question would seem to reduce to a particularly crude form of Moral Sense doctrine!

[1] Clearly he eliminates 'his own' good. Nor by dying does he equate it with an increased aggregate of good save on the difficult supposition that his mere death makes a contribution of maximal quantity. Besides, do men die to swell an aggregate?

[2] *Theory of Good and Evil*, vol. ii., chap. i.

[3] Indeed, Dr. Rashdall categorically says: 'It is always right to choose the greater good. Such a doctrine implies that goods of all kinds can be compared, that we can place goods of all kinds on a single scale, and assign to each its value relatively to the rest.'—*Ibid.*, ii., 38.

Another difficulty is created by Dr. Rashdall's contention that this choice between 'goods' has relation to the effect of our conduct on other people,[1] and that as far as the individual is concerned there is really only one 'good,' *i.e.*, his duty.[2] 'For the agent himself it can never, we have admitted, be right to prefer his own lower to his own higher good, for the simple reason that to do right is always his own highest good.'[3] But why, if there is a sole good for ego, should not 'good' also be sole for alter? Otherwise we have a glaring instance of that Dualism of the Practical Reason to which he himself has drawn attention in another place.

No doubt we constantly compare alternative ways of acting, but in such comparisons we do not measure 'goods' against one another, but rather ways of realising, promoting, or expressing good. Dr. Rashdall admits[4] that eating and drinking are 'good' only as conducive to virtue. And our choice as to what will be so conducive is limited. The content of a man's natural satisfaction is settled for him by his instincts, and cannot be quantitatively transposed or varied. Conceivably, some persons may get more happiness out of Art than the pleasures of the table, but unless they ate and drank their very joy in Art would soon fail. And Dr. Rashdall goes far when he allows, as he does, that the 'raw-material' of virtue and vice is the same. Where some choice as to the line of his duty is necessary, the agent must primarily take into account, on the one hand, his circumstances and opportunities, and on the other, his abilities; and then make his actions organic with some controlling purpose. And though, in our opinion, there is only one intrinsic good—duty or virtue—yet, as Mr. Moore has shown in his *Principia Ethica* by means of his principle of 'Organic unities,' 'good' may take the form of a 'whole,' containing as 'parts' constituents which in themselves are not 'goods,' but, nevertheless, inseparable from 'the good'. If, for instance, 'man's inhumanity to man makes thousands mourn,' it is easy to see how man's love to man will include and guarantee human happiness. For the rest, it may be granted that virtue has a quantitative aspect, as has the life of the body, but in neither case does it follow that quantity is of the essence of either.

In his recent work,[5] however, Dr. Rashdall admits that the real ethical judgment is not primarily quantitative in character, but is rather 'a judgment of value which affirms

[1] *Theory of Good and Evil*, ii., pp. 42, 43.
[2] *Ibid.*
[3] *Op. cit.*, p. 46.
[4] *Ibid.*, p. 40.
[5] *Is Conscience an Emotion?* p. 43.

that such and such things are good'. What these things are he hints[1] when, in stating that pleasures differ in quality, he declares that æsthetic culture and intellectual activity are essentially higher forms of good than 'eating,'[2] goodness or the good-will possessing the highest intrinsic value of all. And the judgment which asserts these superiorities, he says, 'must be a judgment of Reason'.[3] 'The notion of intrinsic superiority or right to prevail—which is implied in calling the experience "higher"—is something more than an emotion: it is an intellectual concept.'[4]

Now, it seems to the writer that the intelligence which gives such verdicts must, at least, lack 'objectivity'. For it is not the common view that we are more 'moral' when we are 'thinking' than when we are eating, or that ethical quality attaches to the mere form of activity, the traditional opinion being that moral quality resides in the motive. Once let moral quality depend upon the inherent nature of our activity as being intellectual or physical, then it will follow that none of our so-called 'lower' forms of activity like eating can be indulged without compromise, nor the so-called higher forms exercised without merit. There are times, of course, when the only moral proceeding is to eat food, and when it would be wrong to prefer the study of Plato to the work of mastication. The inferiority of a drunken debauch, which is described as a lower pleasure, does not arise from its physical nature, but from its unsocial motive. A similar physical breakdown, arising from the accidental taking of a drug, would not be denounced as immoral. And similarly the so-called 'higher' pleasures of art and culture are 'higher' only because they tend to be less immediately selfish. There is such a thing as an anti-social æstheticism, and there are also clever scoundrels. At the present time, nothing is more denounced than German 'kultur'.

But apart from the question whether such judgments of value are correct or incorrect, it is far from clear that value is 'an intellectual concept' or that moral objectivity is founded in the Reason. For no consciousness is purely cognitive, and it is impossible that a 'thought-satisfactoriness' should exist in the mind separate and alone. Rather does it seem that consciousness is primarily appetitive in nature, uses thought in its service, and is, moreover, affectively toned. Dr. Rashdall admits this to some extent when he

[1] *Op. cit.*, p. 44.
[2] *Ibid.*, p. 75.
[3] *Ibid.*, p. 184.
[4] *Ibid.*, p. 186.

says: 'Invariably moral judgments imply facts of feeling as part of their ground'.[1] But he goes on to discount this admission by saying 'those feelings need not be the feelings of the person making the judgment,' and implies that they are an 'object' rather than an essential constituent of the judging process. 'They are part of what the moral judgment pronounces to have value.'[2] It is, says Dr. Rashdall, because I know what pain is that I condemn the sticking of pins into other persons. But to stick pins into a man is not wrong on the mere ground that 'it hurts'. Doctors and dentists hurt others and are not condemned. It is surely through the operation of a certain social instinct within us that we are led to condemn the arbitrary infliction of pain, as we are led to approve its infliction when the intention is beneficent; just as, for the same reason, we approve the squeamishness felt in relation to cannibalistic practices, but disapprove 'a closely analogous repulsion' connected with the work of dissection.[3]

Yet, when we come to inquire more closely into the psychology of such approval and disapproval, Dr. Rashdall insists that 'the judgment of value . . . is not dictated by the feelings,'[4] which are, it would seem, never more than the object of the judgment; and he further contends that there may be persons who pronounce such judgments without any accompanying feeling whatsoever.[5] 'To know that an act causes pain in others,' he says, 'is all that I want to enable me to condemn it.'[6] It is clear from this that feeling is not regarded as having any organic or essential part in the consciousness of value. We do no more than judge 'about' feeling. This view seems indefensible. It appears to imply, as we have just remarked, that there can exist a purely critical consciousness, feeling entering not as an actual experience, but as merely remembered or imagined. And, in addition to this difficulty, we fail to understand how an affective state, whether remembered or imagined, could be evaluated by a purely cognitive consciousness. 'The proposition that pleasure is good and pain bad . . . is one,' we are told, 'that can be assented to without any emotion whatever.'[7] Surely the problem is here conceived in a purely abstract manner. It is always some concrete pleasure or pain on which we pass judgment, not, as it seems to us, on the

[1] *Theory of Good and Evil*, vol. i, p. 154. [2] *Op. cit.*, p. 155.
[3] *Is Conscience an Emotion?* p. 152, and *Theory of Good and Evil*, vol. i., p. 156.
[4] *Ibid.*, i., p. 164. [5] *Op. cit.*, i., p. 169. [6] *Ibid.*, i., p. 169 *sq.*
[7] *Theory of Good and Evil*, i., p. 170.

ground of a mere rational principle, but rather because of the furtherance or otherwise of some great life-interest, which from the psychological point of view is a process in which feeling or emotion plays an essential part. Curiously enough in one place Dr. Rashdall remarks: 'Even our most abstract thinking is dominated by purpose or interest of some kind'.[1] And yet after admitting that it is always the satisfaction of some desire that is pronounced satisfactory,[2] he maintains that the part satisfied is the 'intellect'.[3]

Dr. Rashdall likens too closely the judgment of value to the judgment of fact, whatever similarity may exist between them. 'An object which has merely a meaning for thought, *i.e.*, significance—cannot possess value as such. It must in addition have a meaning for practical experience—it must have some biological significance—it must relate itself to the satisfaction of some vital need.'[4] 'The worth-judgment of an individual expresses the "affective-volitional" meaning of an object for a subject.'[5]

And while the two kinds of judgment may be too widely separated, there remains the distinction between 'judgments all of whose elements may be theoretically apprehended, and judgments which contain constituents which demand an emotional constatation'.[6]

It is unnecessary, in this connexion, to inquire whether in the worth-experience the element of feeling or desire is the more fundamental, whether in the affective-volitional process it is a 'need' or an 'interest' which is sought to be satisfied. Suffice it to say, the affective element is essential to the value-consciousness.[7]

The 'Rational' school of moralists emphasise one element in the appreciation of virtue, but err in making it exclusive. Though the Moral Sense doctrine is defective, yet in stressing the affective aspect, it recognises the presence of a factor essential to the experience. 'Conscience,' whatever it is, must, at least, involve the activity of the whole nature; and we must, therefore, look for its explanation, not in terms of emotion or intelligence, alone and apart, but along the lines of the mind's natural development.

[1] *Op. cit.*, i., p. 173. [2] *Is Conscience an Emotion?* p. 174.
[3] *Op. cit.*, p. 177.
[4] J. L. McIntyre, *Proceedings Aristol. Soc.*, 1904-1905.
[5] W. M. Urban, *Valuation*, p. 28.
[6] 'The Problem of the Value-Judgment': D. W. Fisher, *Phil. Rev.*, Nov., 1913.
[7] 'The values of life are found and enjoyed by us rather than rationally apprehended; and though thought is active in the formation of judgments of value, it does not play an exclusive part.'—Galloway, *Philosophy of Religion*, p. 358.

III.

Now it is clear that the mind never works by 'faculty,' but as a whole. One psychosis differs from another, not because it contains any element lacking to the other, but only in respect of its complexity of development. And Mr. A. F. Shand has shown us that 'mental activity tends, at first unconsciously, afterwards consciously, to produce and sustain system and organisation'. There is, for instance, the system of the primary emotions and appetites on which our characters are built up. There are the more complex systems formed out of emotions, their excitants and tendencies, which may be called Sentiments, of which Love and Hate are typical examples. The Sentiment of Love, in the form of the Parental Affection, is the primitive sentiment of human nature, based, as it is, upon instincts which are biologically of fundamental importance. The Parental Sentiment is at first operative in the small family group. Subsequently, as the family group comes to be extended by natural growth, intermarriage, and the adhesion of outsiders, the Parental Sentiment enlarges to the more comprehensive Tribal Sentiment. All research goes to show that it was out of this Tribal Sentiment that Morality was born. Morality is, in its origin, 'group-morality,' and the fundamental moral principle was 'Thou shalt stand by thy kin,' tribal custom being the first rule of duty. If, then, Conscience in its primitive form is a regard for the Tribe, its approval and disapproval, it will be obvious that as Westermarck says,[1] 'there can be no moral truth in the sense in which the term is generally used'. That is to say, there can be no deeds, as such, which are intrinsically right, 'right' being at first simply the individual's (probably selfish) regard for what the Tribe demands or prohibits in the interests of its own biological survival. As Hobhouse reminds us, 'Rules of Conduct have risen under the conditions of group-morality, and are tarnished with brutalities incident to the struggle for existence. They have been infected by gross conceptions of magical influence and spiritual resentments.'[2] But, in spite of the bewildering variety of these rules and their mixed origin, behind them all is the supreme obligation imposed by blood-relationship and neighbourhood to maintain loyalty to the clan. It is clear that there may be as many different systems of customary rule as there are tribes, and that the only kind of ethical objec-

[1] *Origin and Development of Moral Ideas*, vol. i., p. 17.
[2] *Morals in Evolution*, p. 547 (1915 ed.).

tivity can be found, not in the detailed practices of the groups, but in that spirit of loyalty common to them all. True, the objectivity was limited, in that the devotion was restricted to each several group. Absolute objectivity, in the case of such a Sentiment, would mean that the object of devotion was so widened as to include a number of groups into a larger unity, until humanity itself was encircled.

As morality in its beginnings is based on the fact of blood-relationship, so its growth, by the inclusion of wider groups into its scope, is negotiated by an extension of the same basis of kinship. Dr. Rashdall remarks: 'I am much more interested in one individual or small group of individuals than in thousands of others who are known to me merely as human beings enumerated in the Census. It is only my Reason which objects to such partiality.'[1] By 'Reason' is here meant the axiom of 'equity':—'one man's good is of equal intrinsic value with the like good of another'.

Now, while undoubtedly this idea of 'equality' has done noteworthy service in Law and Politics from the days of the Roman Stoics to the time of the French Revolution and after, and is still a notion with which we have to work, the narrow scope of the original tribal sentiment would seem to have been widened, not, it is true, by an avoidance of ideas (for intellectual processes play an important part in the development of sentiments),[2] but by thought congruous to the character of the sentiment. And it seems to us that the widening has taken place, not by means of any conception so quantitative as that of equality, but by the more 'vital' notion of the 'unity' of those outside with those inside the group. The Stoic based his teaching of world-citizenship on the ground that all men were alike the inhabitants of one and the same city, even the city of Zeus. 'Thou art a citizen of the world and a part of it.'[3] The notion of the 'equality' of all races before the law, usually regarded as an offspring of Stoic teaching, would seem to depend on the more fundamental idea characteristic of Stoicism that, underlying the life of all men, there is a 'unity,' *i.e.*, the presence in Nature and Humanity of an all-pervading Divine Spirit or Reason. 'The whole universe which you see around you, comprising all things both divine and human, is one. We are members of one great body. Nature has made us

[1] *Is Conscience an Emotion?* p. 162.

[2] 'All intellectual and voluntary processes are elicited by the system of some impulse, emotion, or sentiment, and subordinated to its end.'—Shand, *Foundation of Character*, p. 67.

[3] Arrian, *Discourses of Epictetus*, ii., 10.

relatives when it begat us from the same materials and for the same destinies.'[1] Again, 'Slave yourself, will you not bear with your own brother? he has Zeus as his forefather, is a son of the same loins as yourself and the same descent'.[2]

Some may and do regard this development of the Tribal into the Humanitarian Sentiment as due to 'Reason' interpreted as 'the impulse toward a coherent whole'.[3] But 'Reason' so understood is scarcely the same as 'Reason' as interpreted by Dr. Rashdall, much as he commends Prof. Hobhouse's teaching.[4] Reason, according to the former, is 'intellectual' rather than conative; it is 'the faculty of apprehending axiomatic truths'.[5] Whatever we call the universalising tendency by which Tribal develops into Humanitarian Sentiment, the 'whole' thereby effected is not a union of different 'things' into a concept, but a unification of 'selves' by Love. In such a 'whole' the 'parts' exist in some sense for themselves. And the enlargement of the simplest societies does not proceed by means of the influence of any idea like that of equality, but by the notion of an expanding unity, based, at first, upon blood-relationship, intermarriage, and neighbourhood.[6]

Conscience, therefore, is in its origin 'an imitation of Tribal government set up in the breast' of the individual. The social pressure of the Tribe exerted through the Chief gave to the Tribal Sentiment an element of constraint—a constraint of fear which, united with that of the 'love' latent in tribal loyalty, gave to such a Conscience its 'authority'.

From the very beginning, however, a religious form of constraint was exerted through the 'totem' which expressly guarded the unity of the Tribe. Men feared to offend against the community on grounds of religious scruples; for they shrank by any act of 'irreverence' from bringing disaster on the people or incurring anger in their god.[7] Nations came to have their national gods. The patriotism of Greece and Rome possessed a religious basis. Both Stoicism and Christianity base their doctrine of universal brotherhood on a doctrine of a Divine Fatherhood which, however, is differently conceived in the two cases. Indeed,

[1] Seneca, Ep. xcv.
[2] Epictetus, quoted by Hobhouse, *Morals in Evolution*, p. 564 (1915 ed.).
[3] Hobhouse, *op. cit.*, p. 577.
[4] *Is Conscience an Emotion?* p. 83.
[5] *Op. cit.*, p. 134.
[6] The worship of a physically universal object like the sun or moon tended to destroy tribal narrowness. *Cf.* Galloway, *Philosophy of Religion*, p. 113.
[7] *Ibid.*, p. 196.

Religion and Morality have always been inseparably connected and reciprocally influential.[1]

Thus the Religious Sentiment, by combining with the Moral Sentiment, adds to the latter that element of Reverence which is peculiarly characteristic of conscience as we know it.[2] Shaftesbury was, therefore, suggestive when he spoke of conscience as a reflected sense, by means of which there arises 'another kind of Affection towards those very Affections themselves (*i.e.*, Pity, Kindness, etc.) which have been already felt and are now become the subject of a new liking or dislike'. To the point, also, is the remark of Rauh: 'Notre vrai guide n'est ni l'instinct, ni une pensée transcendante, c'est la réflexion sur l'instinct'.[3]

In this 'Reverence' are mingled the restraint of Fear and the Impulse of Love in different proportions according to the nature of the religious attitude. And thus Conscience passes over into a Reverence for, or Faith in, Humanity as being a 'unity'.

Whether this attitude is justified, and the authority of conscience, so interpreted, established is a question for a Metaphysic of Ethics. Even the leaders of the Moral Sense school, as we have seen, felt the need for a speculative vindication of their position. From the point of view of consciousness, obligation is a matter of direct experience: duty is 'intuited,' as we say. Its full ground can be made good only by subsequent theory; and in this sense, of course, every moralist is a 'rationalist'. How we come to know what is right is one question; how we know that what we take to be right is 'really' so, is another, and yet necessary question.

[1] *Cf.* McDougall, *Social Psychology*, 9th ed., p. 313.
[2] *Cf.* Mellone, *Principles of Psychology*, p. 255.
[3] Quoted by Rashdall, *Theory of Good and Evil*, vol. i., p. 155, note.

III.—LOTZE, BRADLEY, AND BOSANQUET.

By Agnes Cuming, M.A.

The two influences under which Lotze's philosophy was produced were Idealism—and particularly Hegelianism—and the theory implicit in physical science; and Lotze's characteristic tenets were developed in opposition to both. In both he found the same fault, an exaggeration of the abstract at the expense of the concrete, of empty scheme at the expense of reality. He is opposed to what he viewed as Hegel's identification of thought and reality, as he is opposed to the empty and misleading simplifications of science regarding itself as metaphysics.

Hence Lotze's doctrine forms essentially a *via media*, a compromise. His moderation and the air of quiet reasonableness with which he surveys a question on all sides make his work extraordinarily useful, and his attitude of mediator between extreme theories on behalf of the contents of the ordinary consciousness give his theories all the plausibility of a vindication of common-sense. For Lotze wishes to define the aim of the complete human being. His subject is not logic but life: and of life he insists that logic is a very subordinate part. Of the striver after knowledge he says: "But all his endeavours have in the last resort but this one meaning, that they, in connexion with those of countless others, should combine to trace an image of the world from which we may learn what we have to reverence as the true significance of existence, what we have to do and what to hope".[1] And again, "taking truth as a whole, we are not justified in regarding it as a mere self-centred splendour, having no necessary connexion with those stirrings of the soul from which, indeed, the impulse to seek it first proceeded".[2]

Lotze's problem, in fact, is "the reconciliation of reasoned or systematic knowledge with 'the unscientific consciousness of spiritual reality which is expressed in religion and morality'".[3]

[1] *Microcosmus*, Eng. trans. (1885), introd., p. ix. [2] *Ibid.*
[3] Jones, *Philosophy of Lotze* (1895), chap. i., p. 15.

With the whole of Lotze's problem we are not here concerned, but only with his treatment of the position and function of thought. It seemed, however, necessary to give some idea of the context of this smaller question, since it is this pre-eminently practical aim of Lotze's which accounts for the undistinguished *rôle* which is assigned to thought in his system. Lotze's doctrine of thought is definite enough in its outlines: While reality may be more extensive than our capacities for representing it (whether by knowledge, feeling, etc.), these domains are naturally beyond our interest because beyond our reach. Our intelligent experience does not constitute reality and need not be co-extensive with it, but it gives us (when we take it widely and do not restrict it to thought) what is for us its essential meaning. But, within this intelligent experience, thought is only a small part: sensation, perception, memory, feeling (pleasure-pain) and volition are all parts of our intelligent experience without coming under the heading of thought. The exact place of thought, as compared with these other constituents of our mental life, is specified in the following quotation from Jones:[1] "He [Lotze] hands over the original data of thought to pure sense, and the first elaboration of them to an 'unconscious psychical mechanism'; and he hands over the ideals which inspire and regulate knowledge to feeling". That is to say, at one end of the process we have "this varied world of ideas within us . . . which forms the sole material directly given to us, from which alone our knowledge can start,"[2] or, in other words, "the mere sequence and combinations of psychical experience, which the natural laws of mind bring forward,"[3] and on which thought must set to work. These data are comparable in degree, number, and extensive quantity, a circumstance which Lotze views merely as a fortunate fact:[4] and these processes of comparison,[5] etc., are "viewed as preceding the specifically logical acts, as pre-requisites for the critical activity of thought rather than as forming part of it".[6]

At the other end we have thought subordinated to feeling. It is the function of feeling to supply thought with its ideal, impulse, and criterion. It is by feeling that we become aware of the *worth* of objects, and the supreme worth is the Good

[1] *Philosophy of Lotze*, chap. ii., pp. 69-70.
[2] Lotze, *Logic*, Eng. trans. (1888), Bk. iii., chap. i., § 306.
[3] Adamson, *History of Logic* (1911), p. 197.
[4] Lotze, *Logic*, Bk. i., chap. i., § 19.
[5] Treated of in Lotze's *Logic*, Bk. i., chap. i.
[6] Adamson, *History of Logic*, p. 199.

which is for Lotze a higher category than the True.[1] Feeling also " is the source of the necessity which we recognise in the laws of thought ".[2]

Between these two extremes is the domain of Thought itself. It moves in this middle sphere re-arranging " the given data in accordance with general laws, grouping the phenomena of experience in classes and connecting them in an order of sequence and simultaneity which is necessary ".[3] Thought is the discursive faculty, occupied with what is universal and abstract: its function is purely formal,[4] and it is governed by the abstract rule of identity.

The *aim* of thought is not to be or to copy reality, but to be valid of it: thought is the means or the tool of knowledge.[5] The nature of this tool Lotze deduces from its two limiting conditions: it must fit the thing and it must fit the hand.[6] According to the first condition the forms and laws of thought must " show a constant and regular adaptation to reality," according to the second, which is more important for the understanding of Lotze's peculiar position, these forms and laws are the result of the place which Lotze assigns to the human mind. The mind of man " has a modest position somewhere in the extreme ramifications of reality," [7] and the operations of thought which are made necessary by this position need not therefore correspond to the reality which we are trying to understand, but may be, in Lotze's image, frequently a mere scaffolding,[8] which helps us to construct the building without forming part of it. In other words, thought is a round-about laborious substitute for the " adequate perceptive intuition with which, for some unknowable reason, man is not endowed ".[9]

Now the two important points in Lotze's doctrine as thus sketched are his view of the criterion of truth and his dualism, for these are the two main subjects on which he touches most nearly the systems of Bradley and Bosanquet. I will return to these points after a sketch of the other two writers.

They may be classed together, both because their views

[1] Jones, *Philosophy of Lotze*, chap. ii., p. 54. *Cf.* also chap. vii., pp. 294-295.
[2] *Ibid.*, p. 60. *Cf.* Lotze, *Logic*, Bk. iii., chap. v., § 356.
[3] Jones, *Philosophy of Lotze*, preface, p. ix.
[4] Lotze, *Logic*, Bk. iii., chap. iv., § 336.
[5] *Ibid.*, Bk. iii., chap. iv., §§ 341-342. [6] *Ibid.*, introd., p. 8.
[7] *Ibid.*, introd., p. 9. [8] *Ibid.*, introd., p. 9.
[9] Jones, *Philosophy of Lotze*, preface, p. xi.

have so much in common and because the particular character of those views is so largely to be explained by a common indebtedness to Lotze. Their treatment of the problems of logic is almost a continuation from the point at which the German writer left off.

The first important point in both Bradley and Bosanquet is one on which they are fully in accord, namely, the definition of the word "idea". To Bradley is due [1] the clear distinction between idea as a psychical occurrence, as part of our mental life, continuous with the mass of feelings, volitions, etc., which make up the stream of consciousness, and idea as a symbol possessed of a meaning, applicable beyond its occurrence as an individual, and in fact universal,—idea as it is used in logic. This analysis is practically quoted by Bosanquet,[2] and may be taken as representing his own views.

With regard to Judgment, we may set the two definitions side by side. "Judgment proper is the act which refers an ideal content (recognised as such) to a reality beyond the act." [3] "Judgment is the reference of a significant idea to a subject in reality, by means of an identity of content between them." [4] The treatment of judgment is the essence of the philosophic position of both writers, and it is just here that they differ rather importantly. As far as concerns the "ideal content" and the part which it plays in judgment they are both agreed: the act of judgment is concerned with a psychical occurrence viewed not as such but in its logically more important character of a symbol, and this symbol, this meaning is referred to reality. It is here that the difference begins, both in the reference to reality and in the nature of that reality to which the reference is made.

As regards the nature of reality on both theories, we shall perhaps be roughly accurate in saying that Bradley treats the question ontologically and Bosanquet epistemologically. For Bradley, reality is the Absolute, ultimate reality as a whole, beyond the act of judgment and presenting itself to our thought as an Other which thought cannot attain. The Absolute can supply us with the assurance that there is an eternal criterion of truth; but it is a criterion which is inapplicable and is only able to tell us that all our judgments are in varying degrees false, since for all of them reality

[1] *Logic* (1883), Bk. i., chap. i., especially §§ 6-7.
[2] *Essentials of Logic* (1895), Lect. iv., pp. 74-75. *Cf. Logic* (1911), vol. i., Bk. i., chap. i., I., i.
[3] Bradley, *Logic*, Bk. i., chap. i., § 10.
[4] Bosanquet, *Essentials of Logic*, Lect. iv., p. 79.

must retain the features of an Other. For Bosanquet, on the other hand, the reference to reality is differently approached: it is indeed the "present perception" (the "this" in Bradley's terminology[1]) which provides us with the guarantee that we are not spinning webs of abstractions; but this is not sufficient for knowledge: nor is an "Other," standing as it were over against us, sufficient either: the ultimate explanatory condition of knowledge takes the form of a postulate, the postulate namely of the world as a rational system. That the world is rational and that it is accessible to *our* reason[2] are the two sides or aspects of this fundamental assumption, which can never be proved but which is necessarily assumed in every argument. By regarding the function of judgment as that of progressive articulation within a postulated system Bosanquet avoids the scepticism of Bradley on whose theory every judgment is an approximation to, without being a progress towards, truth. Knowledge for Bosanquet is the system of reality progressively demonstrated before our eyes: each separate true judgment expresses the clearing up of some relation within the system; —hence the reference to reality in a judgment is not a reference to reality in general but to "a subject in reality".[3] On the other hand, for Bradley, each separate judgment is an approximation towards the Absolute predicated of itself, a barren tautology which we are forever prevented from reaching by the relational form which is essential to thought. Hence, on Bradley's theory, even if we could progress towards Truth, we should be "progressing" towards the annihilation of Knowledge.[4]

In this emphasis on System as the postulate of knowledge, and in the more satisfactory function which it enables him to ascribe to the finite judgment, Bosanquet is in advance of Bradley. It only remains to trace the philosophic connexion of both writers with Lotze.

For this purpose we may return to the questions of the criterion of truth and of dualism, and consider them in turn. The former is the point on which Lotze is in greatest contrast to the other two writers, whereas in the history of dualism Lotze, Bradley, and Bosanquet are successors.

To take the question of the criterion first. "It is self-evident," says Lotze,[5] "that in the case of truths which are

[1] *Logic*, Bk. i., chap. ii., § 32.
[2] Bosanquet, *Essentials of Logic*, Lect. x., pp. 165-166.
[3] *Ibid.*, Lect. iv., p. 79.
[4] *Appearance and Reality* (1902), Bk. ii., chap. xv., pp. 179-180. *Cf.* Bk. ii., chap. xxiv., p. 361.
[5] *Logic*, Bk. iii., chap. v., § 356.

to be recognised immediately as universally valid, their sole credentials must be the clearness and strength with which they force themselves upon consciousness and at once claim recognition without constraining it by any process of proof." And further on he describes the way in which, as soon as the mind turned away from the variety of objects in space to the simple relations contained in them all alike, "then at once the truth of each several principle one by one sprang to light self-evident and unproved. . . ." [1] He thus bases the criterion of truth on an immediate feeling of self-evidence, in a way which reminds one of Descartes' clear and distinct perception.

Yet in the same chapter from which both these quotations come, Lotze admits the existence of "false forms of self-evidence," [2] and describes the use of logic in freeing us from such. Once the logical correction has been gone through, however, Lotze would regard a given principle as a truth of universal validity, certain *a priori*. "We do not deny the possibility that this trust in reason may now and again deceive us; but we should not surrender the presumption in favour of a principle thus arrived at being true merely because it is *possible* to distrust it; we shall hold fast to it until either the results to which it leads involve us in contradictions, or until some other truth becomes plain to us, from which we are able to understand how a proposition now seen to be false came to present the appearance of a self-evident truth." [3] In his insistence on feeling as a criterion, Lotze is as far as possible from Bosanquet with his conception of system, yet in this admission that feeling alone does not suffice and that it really holds a place subordinate to reasoning, Lotze has admitted all that is essential in Bosanquet's position.

In the case of Bradley the question of the criterion is very complicated. I wish to emphasise what is characteristic in his theory, and will refer, therefore, to his contrast between the qualities peculiar to thought and to reality respectively, for it is this which explains the failure which he regards as essential to thought. Reality, as indicated in the subject of a judgment, has two special characters. It is infinite in the sense that, being placed in countless relations to the rest of the world, it strives "unsuccessfully towards an all-inclusive whole"; [4] and it is immediate in the sense that it "claims the character of a single self-subsistent being". [5] Thought,

[1] *Logic*, Bk. iii., chap. v., § 358. [2] *Ibid.*, § 356. [3] *Ibid.*, § 356.
[4] *Appearance and Reality*, chap. xv., p. 177. [5] *Ibid.*

on the other hand, if we analyse its nature in the completed judgment, lacks both these qualities: it is a purely discursive activity, an activity which deals with relations. Yet its aim is reality, as described above. "Thought does desire such individuality, that is precisely what it aims at." [1] But this aim is necessarily doomed to failure: if thought possessed the features of reality, its immediacy, individuality, and all-inclusiveness, it would have lost its own character by losing the relational form which is essential to it. By becoming immediate, thought "would be a system of relations no longer, but would have become an individual experience. And the Other would certainly have been absorbed, but thought itself no less would have been swallowed up and resolved into an Other." [2] Theoretically speaking, thought must choose between an ultimate failure and a suicidal success. But this choice is theoretical only: to thought, as we know it, failure is essential: "Thought can understand that, to reach its goal, it must get beyond relations. Yet in its nature it can find no other working means of progress." [3]

Bosanquet's criterion of truth is system, as we have sufficiently seen. The truth or untruth of a judgment cannot be pronounced upon in isolation, but must be determined by its place in the interrelated whole which is our world. This is the side of the question which presents itself to us when we deal with any given judgment; but looking at the problem as a whole we see that this conception of the world as a rational system is neither self-evident nor capable of proof. It is in fact a postulate, on the adoption of which we have a rational theory of science, and of which every advance of science is a progressive justification.

Coming now to the question of dualism, we find less a contrast than a progress.

Lotze's dualism is radical and complete. He makes a cleft between feeling which supplies the material and thought which exercises its purely formal activity upon it. That truth results from this partnership of functions which are utterly diverse is explained by Lotze in words which make it almost seem due to a happy chance. In his *Logic* he says: "The nature of . . . things, of the given thinkable contents, is so constituted, that thought by surrendering itself to the logical laws of these movements of its own, finds itself at the end of its journey if pursued in obedience to those laws, coinciding with the actual course of the things themselves".[4] To bring an element of necessity into the

[1] *Appearance and Reality*, chap. xv., p. 179. [2] *Ibid.*
[3] *Ibid.*, pp. 181-182. [4] *Logic*, Bk. iii., chap. iv., § 342.

account of thought's dealings with reality was impossible on a theory which had put an abyss between these two factors of the judgment.

This cheerful optimism changes in Bradley to its most gloomy opposite. Thought and the material upon which it is to be exercised still confront each other as alien, but no happy chance makes them work in harmony. Their diversity makes the result of their partnership a necessary failure. It may, however, be described as progress that we have got beyond the conception of a happy result which had no necessity about it.

In Bosanquet the advance is much more definite. In dealing with knowledge he takes up a position which is more *within* the problem, and which frees him from many of the difficulties which beset both the other writers. He does not require to invoke a fortunate accident to account for the attainment of truth, nor does he need to regard thought as a process which has failure ingrained in its very nature. His doctrine of reality as a rational system affords a more satisfactory solution.

Yet dualism remains even here, as may be seen by the attention which Bosanquet devotes to the question of the reference to reality in the judgment. "Knowledge," he says,[1] "is the affirmation or judgment which identifies the constructive interpretation of our present perception with the reality which present perception forces upon us." This —and there are many other passages to the same effect[2]— seems to regard the "this" of perception, the prick of sense, as the reality par excellence, and to view the action of our thought upon this material as an addition which is less likely to be "true". But there is no reason for regarding what is accessible to mind as *less reality* than what is gained by the senses. Even such a dictum as, Mind interprets the data of sense, has this dualism in it: we imply that sense-experience is forced on us and that we thereupon begin the supererogatory work of systematising it. And then comes the impossible request to show how our "thoughts" agree with "reality". If we said Mind and sense interpret the data of mind and sense we should be nearer the mark: we should have recognised that the categories are as much *there* as *here*, as much "in" things as "in" the mind,[3] that we are forced to think just as we are forced to feel, that objectivity is for mind as well as for sense,—in short that reality is intelligible, that the real is rational.

[1] *Essentials of Logic*, Lect. ii., p. 29. [2] *Cf. ibid.*, p. 32.
[3] *Cf.* Seth, *Scottish Philosophy* (1890), Lect. iv., pp. 144-145.

Hence there is no stepping outside the activity of knowing to compare its findings with reality: objectivity is demonstrated by an analysis of the living judgment in the making, or else it cannot be demonstrated at all. "There is coercion arising out of the relation between the thinker and the thinkable, when the thinkable is being thought. This is where we get objectivity for our thoughts." If a certain way of thinking things helps us to understand them, this is surely a guarantee not merely that our desires are attaining satisfaction but that we are thinking as reality is forcing us to think, that instead of fitting an alien matter into subjective categories we are discovering the plan, the rational structure of reality itself. And what more objectivity than this could be demanded or indeed be possible?

The whole problem of a reference to reality is a difficulty which arises from having adopted a dualistic position on the subject of knowledge: and in the present instance of Bradley and Bosanquet it seems that this problem, with its attendant difficulties, only arose out of the separation of thought and reality which was so emphasised by Lotze. Having been separated, they had of course to be united again, if knowledge was to be possible: but their separation was artificial. It is impossible to realise exactly how this problem took the form it did for Bradley and Bosanquet unless we have traced its origin to the very definite dualism in establishing which Lotze supposed himself to be returning to Kant. Lotze formulated a dualism and left it there, acknowledged and affirmed, but Bradley, with his conception of the Absolute and the consequent necessary falsity of all judgment, and more particularly Bosanquet, with his postulate of system, endeavoured to think out this dualism, and make its implications for the theory of knowledge more precise.

But since there is no stepping outside the knowledge process it is obvious that the only possible criticism of knowledge is an immanent one, a criticism of a lower conception from the point of view of a higher, more comprehensive one. In Hegel's phrase, the forms of thought must examine themselves.[1]

[1] Hegel's *Logic* (Wallace's translation, 1874), chap. iv., § 41 (1).

IV.—SCHOPENHAUER AND INDIVIDUALITY.

By Bertram M. Laing, M.A.

Schopenhauer's philosophy is one which fails in a remarkable degree to do justice to individuality. Whether it be examined in its theory of knowledge, in its metaphysics of the will, or in its ethical doctrines, it is found to assign no value to individuality. The latter is viewed as an illusion, and everything tainted with it is held to be defective. The ideal of the Saint merely embodies this hostility to individuality in its most intensified form. It is the aim of this paper —first, in sections one, two, and three, to show the position assigned to individuality by Schopenhauer in the different aspects of his philosophy; and secondly, in sections four, five, and six, to offer a few criticisms upon that philosophical attitude.

I.

Schopenhauer's theory of knowledge is specially directed against Kant's view of the understanding and the reason. According to Schopenhauer, the tendency of Kant's theory was to assign to the reason a place superior to the understanding, in that, while the understanding was confined in its activity to the sphere of phenomena, the reason presented a possible way of access to the thing-in-itself and was to be the avenue to a metaphysical world.

Schopenhauer deprives the reason of the honour assigned to it by Kant. The reason is set forth as being wholly dependent upon the understanding. The latter is a direct apprehension of reality; its knowledge is of objects, is concrete, is of the nature of an *aperçu*, and is what may be called "acquaintance" (Erkennen). As contrasted with this, the knowledge given by the reason is abstract, and is what is called "science" (Wissen). It consists merely of an abstract from the concrete knowledge of the understanding. It does not extend the latter but only gives it another form. It is a copy or repetition of the world of the under-

standing, while the latter is deeper than what can be thought *in abstracto* and is for the reason inexhaustible.[1]

The *rôle* which Schopenhauer assigns to the reason is a quite pragmatic one. It is a mere adventitious and temporary organ of the will. It is a means to the preservation of the individual and the perpetuation of the species—the two activities which constitute the fundamental nature of the will. The understanding is always confined to the present. The reason, however, can replace complex intuitions by abstract notions, and has thus a great practical value. Abstraction means casting aside a useless burden for the purpose of easier manipulation of knowledge: this is the case with what is called scientific form, as, for example, classification. Abstract knowledge can be fixed, retained, and communicated. In relation to moral action, the reason serves merely to illumine action, not to determine the will; and, in general, it is but a factory hireling in the service of its master, the will.[2]

Being fashioned for practical use, the reason carries along with it, wherever it operates, traces of its origin. There cling to it individual and subjective elements. It is most naturally concerned with the wants and interests which fill up life. It tends to cling to what will satisfy the needs of the body. From its practical nature, it establishes gulfs between things and between men, so much so that each man seems to himself to live in a world different from that of other men. It is unable to reach the fine modifications of the real, and is most adapted for manufacture: for anything finer, as Art and Morality, it is unfruitful.[3]

There is a higher phase of consciousness which gets rid of these defects belonging to the intellect. This is the level of the genius and consists of the immediate apprehension or the intuition of the universal, the Ideas in the Platonic sense which are not to be confused with the abstract notion of the reason nor with the Lockian sense of idea. The

[1] *Die Welt als Wille u. Vorstellung*, Band I., §§ 4, 5, 6, 8-14, and *Anhang-Kritik der Kant. Phil.* Also, *Grundlage der Moral*, § 6, and *Der Satz vom zureichenden Grund*, § 21. The 'reality' which the understanding apprehends is 'empirical reality' in contrast to the reality of the will as thing-in-itself.

[2] *Die Welt als Wille u. Vorstellung*, Band I., §§ 12, 14, 16, 27; Band II., Kap. 15, 17, 18, 19, 22, 41. Also 6 and 7. *Parerga u. Paralipomena*, Band II., Kap. 1, §§ 2, 10; Kap. III., §§ 27, 31, 32, 51 and Anhang. *Schriften zur Naturphilosophie, Physiologie u. Pathologie; Vergleichende Anatomie.*

[3] *Die W. als W. u. Vorst.*, Band I., §§ 7, 12, 24, 66; Band II., Kap. 15, 17. *Par. u. Paral.*, Band II., § 51, § 96.

mental attitude at this third level is one of pure objectivity, free from all subjective elements or reference to the person or the will. There is complete absence of all interest, entire forgetfulness of one's own personality and its relations. The subject ceases to ask about the when, the where, the whence, and the why; he sinks his whole power and strength, and loses himself completely in the object. He remains as pure subject, as pure mirror of the object, and becomes a pure, volitionless, painless, timeless subject of knowledge. Schopenhauer means that all sense of individuality is lost, or that individuality is completely transcended. The result is that happiness and misery are alike here excluded; and liberation from the suffering of the world is thus secured. This attitude, however, is only temporary: it cannot be long maintained at a time. So soon as any relation whatsoever of the pure intuited object to our will or to our person enters again into consciousness, the charm comes to an end. We fall back into knowledge dominated by the principle of the ground, and apprehend, not the universal, but the particular member of a chain to which we also belong.[1]

II.

Schopenhauer, as against Kant, maintains that a knowledge of the thing-in-itself is possible and that we have such knowledge in our own self-consciousness. In this inner life the subject not merely penetrates into reality, but is the real essence of the world.[2] This inner life is, for Schopenhauer, will. But will, according to him, must be regarded as being in no way dependent upon, or connected with, knowledge, for example, in the form of motive. The knowledge attaching to the human will is wholly subsidiary, being necessitated through the increasing complexity and variety of organic needs. What is called the intellect is a merely phenomenal point at which all impressions are focussed for practical purposes.[3]

What remains to characterise the will, after knowledge has been excluded from its nature, is the affective and emotional life: wishes, hopes, fears, loves, and hates. It is the

[1] *Die W. als W. u. Vorst.*, Band I., §§ 33, 34, 35, 36, also 30-32, 49, 51, 52. *Par. u. Paral.*, Band II., § 51, § 58. *Der Satz vom zureichenden Grund*, § 34.

[2] *Die W. als W. u. Vorst.*, Band I.; *Anhang-Kritik der Kant. Phil.*, Band II., Kap. 18, 50. *Par. u. Paral.*, Band II., § 116.

[3] *Die W. als W. u. Vorst.*, Band I., § 21; Band II, Kap. 15, 19, 20, 22. *Par. u. Paral.*, Band II., § 116.

inner aspect of what appears outwardly as a bodily act. Its fundamental nature may be expressed in abstract terms as a continual striving or struggle which is of a two-fold nature—self-preservation of the individual, as seen in the fear of hunger and the dread of death, and conservation of the species as seen in the intensity of the sex impulse and the anxious care of offspring. As a comprehensive expression of this two-fold activity or of the inner experiences and impulses which the individual immediately knows or directly feels, the "Will to live" is used by Schopenhauer. It is a struggle for existence, but blind and in no way dependent upon, or a result of, an objective knowledge of the worth of life. It is ceaseless, tireless activity, a non-rational impulse, being the source of its own movement and having in no way its sufficient ground in the external world.[1]

Everything in the world is to be interpreted on the basis of man's inner experience. The inner nature of physical and organic phenomena is a will to live. Everything pushes and strives for existence, and thereafter for the highest possible development of the same.[2] As a result of this, no teleological interpretation of the world can be given. The seeming teleology in the world or the existence of means to ends simply reveals the one will which constitutes the inner nature of the world and is purely relative to the intellect. When we view the world-process in relation to the one will behind it, we find it to be but a process in which the will consumes itself. The distinction of ends and means dissolves in this process. Every thing, and particularly every organism, can receive and maintain its existence only through the constant cessation of another. The cessation of one existence is balanced by a gain elsewhere, and throughout the world a balance is maintained, all that takes place being merely an ebb and flow.[3]

The world as a whole has no purpose. The will has no ground, no object towards which it strives. Schopenhauer maintains this because, though starting with the human will which is connected with a motive, he yet denies that a motive explains the will or determines it. The motive only shows the direction of the individual will at a particular moment. To ask why an individual wills is absurd. We

[1] *Die W. als W. u. Vorst.*, Band II., Kap. 19, 23, 28, 41. *Freiheit des Willens*, I. (2).

[2] *Die W. als W. u. Vorst.*, Band I., §§ 19, 21, 23, 24; Band II., Kap. 28.

[3] *Ibid.*, §§ 27, 28; Band II., Kap. 26. *Par. u. Paral.*, Band II., § 94. *Schriften zur Naturphilosophie, Vergleichende Anatomie.*

can only say that he wills because his essence is will; and this is ceaseless striving, endless activity. Accordingly, in the world there is nothing but eternal becoming and endless flux, continual birth and decay. Animals eat, and reproduce their kind year in, year out. And what comes of it all? All that can be said is, that it is the working out of life, of will; it is the satisfaction of hunger and the sex-impulse.[1]

But just as Schopenhauer assigned the most important position in his theory of knowledge to the intuition of the universal, so in his metaphysics of the will he assigns the highest value to the universal—the Ideas or the species. It is in the Ideas or the species that the will reveals itself most fully, not in the individual. The latter perishes but not the Idea which determines his nature or the species to which he belongs. When we view Nature objectively, we find—so far as it is possible to speak of purpose—that she has but one purpose; and that is the conservation of the species or the preservation of the Ideas. Before the species or the Idea the individual pales into insignificance; his life's course is nothing but a dream and a tragedy. For Nature, the individual has only an indirect value, namely, as a means to conserve the species. The will to live has its roots not in the former but in the latter. For the species Nature takes extravagant care, as is seen in the enormous overproduction of seed and in the intensity of the sex-impulse. But she is ever ready to sacrifice the individual not only in a thousandfold way through the most insignificant incidents but also in a fundamental and predetermined way from the moment when the individual has served the purpose of continuing the species. To attempt to find why Nature should seek to conserve the species is vain. It simply seems as if Nature strove to lose none of the Ideas, the permanent forms, which, with so much care, she has brought into being.[2]

III.

Schopenhauer, in his more empirical treatment of morality, contends that conduct to which a moral value is in actual experience alone ascribed is purely altruistic, wholly disinterested conduct. The only principle of morality is sympathy. Negatively, moral conduct is that from which every egoistic element, immediate or remote—such as the weal or woe of the agent, fear of consequences, regard for personal honour or for public opinion—is excluded. Positively, it is conduct

[1] *Die W. als W. u. Vorst.*, Band I., §§ 29, 58; Band II., Kap. 28.
[2] *Ibid.*, §§ 54, 58; Band II., Kap. 28, 41.

whose nature lies in a complete reference to, whose motive is the weal or woe of, another. Expressed in abstract terms, the principle is: hurt nobody, but help all as far as possible. And, in concrete form, this principle appears as sympathy and self-sacrifice. Such moral conduct issues not from a knowledge of this abstract moral principle, but from an insight into the identity of all individuals, or from a penetration of the illusory difference between individuals arising through space and time. The moral agent feels the suffering or the welfare of another not as his own, for this would introduce an egoistic factor which must in true morality be excluded, but as that other's, just as he would feel his own as his own.[1]

Schopenhauer, however, introduces into his theory a hedonistic value, and by doing so is driven beyond his principle of sympathy. Pain, for him, is alone positive and real. All human action springs out of need and suffering. Thus, for example, it is the suffering and the helplessness of others that directly awaken pity in us, the fortunate leaving us indifferent. All enjoyments, on the other hand, find their whole significance in relation to a preceding wish or defect, and are, in consequence, purely negative. As a result of this, life is essentially suffering: it is a steady transition from wish to wish, from defect to defect, the motive, though continually promising complete satisfaction, being no sooner attained than it appears in another form and calls forth a new effort. The basis of this lies in the fact that the will has no end. The misery and the suffering in the world have their source in the nature of the will, and just because man is essentially will, he is doomed to suffering. The world, judged by this hedonistic standard, is something that had better not have been; and every man is peculiarly a being who ought not to exist but who must expiate his life through suffering and death.[2]

Schopenhauer, recoiling from this suffering which has its basis in the essence of things, finds that sympathy is an inadequate principle. If a man sees through the illusion of difference between individuals, he will discover that all egoism and aggression mean so much more suffering to be borne by the one will which performs the great tragedy and comedy at its own cost. But sympathy, though lessening

[1] *Grundlage der Moral*, §§ 7, 13, 15-19, 22. *Par. u. Paral.*, Band II., §§ 115, 116.

[2] *Die W. als W. u. Vorst.*, Band I., §§ 56-60, 65, 67. *Par u. Paral.*, Band II., § 113, § 148 (Anhang), §§ 150, 151, 157 and Anhang. *Grundlage der Moral*, § 16.

the pain in the world, cannot cut at the roots of suffering, for though in living for others and seeking their welfare the individual has ostensibly ceased to affirm the will as it appears in him, he is yet continuing to assert it through the medium of other individuals in virtue of the identity of their essence with his own.[1]

There is but one way of escape in face of the worthlessness of life. The root from which suffering springs must be eradicated. But as this root is the will itself, the way of escape is the negation of the will to live. This is not suicide, for suicide means merely the death of the individual; but the negation of the will must involve also the species. The will to live shows itself as an effort after self-preservation in the form of satisfying hunger and thirst, and as the perpetuation of the species in the form of the sex-impulse. As the body is the appearance of the will, the will to live consists of all the bodily wants and needs that crave satisfaction. The satisfaction of all these needs which are inseparable from the body in its healthy state is the foundation of all acts of will, and constitutes the affirmation of the will to live. The negation of the will, on the other hand, consists of a refusal to satisfy the various bodily needs. It is an aversion towards all that gives content to the life of man. The individual adopts celibacy, that is, he negates the will to live in the form of the sex-impulse; and he adopts poverty, fasting, and self-torture, that is, he negates the will in the form of self-preservation, until death finally relieves his will.[2] This ideal is that of the saint, and is not a mere philosophical tale, but is an actual course of life, exemplified, for instance, by the Christian saints and martyrs.

IV.

Schopenhauer adopts unreservedly an idealistic standpoint, which he holds, in a somewhat dogmatic and uncritical manner, to be the only standpoint possible for a true and honest philosophy.[3] But the difficulty which besets idealism is to do justice to the objective world, and with the failure to do this, to secure due recognition of individuality. This difficulty of idealism emerges in Schopenhauer's theory in an intensified degree on account of the extreme form which his idealism takes.

[1] *Die W. als W. u. Vorst.*, Band I., § 68.
[2] *Ibid*, §§ 54, 60, 66, 68, 69.
[3] *Ibid.*, Band II., Kap. 1; Band I., § 1.

Schopenhauer takes his stand upon what he calls "facts of consciousness," and maintains that only consciousness is directly given and immediately certain. The result is that the objective world is at the outset of the argument put at a disadvantage and the first step is taken towards a failure to conserve individuality theoretically. Schopenhauer does not attempt to defend his position but regards it as self-evidently true.

There is a certain ambiguity attaching to the phrase "facts of consciousness," but the trend of Schopenhauer's theory leaves no doubt as to what he understands by it. It means for him not merely any object or thing of which we are aware, nor merely any mental state such as a feeling or emotion, but it means that everything which we know lies within consciousness and that everything which a person knows exists only for his consciousness and as known by him.[1] His position is an extreme subjective idealism,[2] each individual being confined to his own consciousness and being completely unable to get beyond it. His idealism is epitomised in the simple proposition that "the world is my idea" (Vorstellung).[3] Schopenhauer takes his stand upon the unproved, and by no means obviously true, assumption that what we know must be within consciousness. In connexion with the problem of knowledge, there are two notions which require to be clearly distinguished—presence in consciousness, and presence to or a relation to consciousness. There is an important difference between these two notions, and they lead to considerably different consequences. A "fact of consciousness" need in no way exist in consciousness; knowledge of a thing may imply merely the presence of a thing in some form or other to the mind; and it is dangerous, as Schopenhauer does through a confusion of the two notions, to take one as the basis of a philosophy without an attempt to establish its validity as against the other or to discuss their respective merits.

What influences seem to make themselves effective in the thought of Schopenhauer are a desire to start with what is most indubitable, and a belief that, since only consciousness is directly given and can give immediate certainty, whatever is certain must lie in consciousness. He seems to think that, if a fact should be granted not to be in consciousness, a gap is thereby created which renders certainty impossible. But,

[1] *Die W. als W. u. Vorst.*, Band II., Kap. 1.

[2] He even speaks of things being within the 'brain,' since the intellect is for him a mere brain-function.

[3] *Die W. als W. u. Vorst.*, Band I., § 1; Band II., Kap. 1.

again, it must be noted that "not to be in consciousness" is not necessarily the same thing as "to have no relation to consciousness"; the question is one as to the kind of relation which, in knowing, exists between consciousness and the thing known, and as to whether that relation is properly expressed by the phrase "in consciousness". Even assuming, however, that a fact is in consciousness, we have no greater reason on that account to accept it as certain. The superiority of the evidence of a fact does not depend upon whether it is in or outside of consciousness. We have in either case to determine what it is of which we are certain; even with regard to such inner or subjective states as feelings and emotions we may be mistaken as to their nature.

Schopenhauer argues that philosophy cannot, like the empirical sciences, take the objective world as simply there but has to get to what is primary and most fundamental;[1] and for him what is primary and most fundamental are facts of consciousness. What underlies this position and what underlies Schopenhauer's whole theory of knowledge is the assumption of the primary and fundamental character of consciousness. Schopenhauer himself gives no defence of such an assumption, and yet the truth of the assumption is not obvious. It is generally regarded as one of the important achievements of Kant to have shown that an external world is an essential condition of that consciousness which the individual comes to have of an "inner" world. It is important to note, too, that in actual life we speak not of "facts of consciousness" but of "facts," implying that they constitute the nature of an external world independent of our consciousness of them. The transformation of "facts" into "facts of consciousness" is really the conclusion of a philosophical theory instead of being the starting-point; and a philosophical justification is required for regarding "facts" as facts of consciousness and not as belonging to an independent, external world.

By regarding consciousness as primary and everything as lying within consciousness, Schopenhauer rules out at once as absurd the belief that an external, objectively real world has existed outside there from all eternity and has simply entered the mind through the senses. Idealism means for him the position that the objective world has merely a relative and conditioned existence.[2] The implication which the phrase "facts of consciousness" has for him leads him

[1] *Die W. als W. u. Vorst.*, Band II., Kap. 1.

[2] *Par. u. Paral.*, Band II., § 27. *Der Satz vom zureichenden Grund*, § 21. *Die W. als W. u. Vorst.*, Band I., § 6, § 7; Band II., Kap. 1.

into a confusion between knowledge and existence, or prevents him from ever questioning whether there are any grounds for distinguishing the two. What exists is identified with what is known or in consciousness. Existence is exhausted in the knowledge-relation. The existence of things is relative to knowledge of them, and out of this relation they cease to exist. Here we come upon an extreme subjectivism which renders inexplicable the joint efforts of many minds towards the understanding of an object so as to attain a common knowledge of it, which in consequence destroys any possibility of community between different consciousnesses through the medium of things or an objective world, and which erects a difference in knowledge into an ultimate and insuperable barrier between individuals in that, through its identification of knowledge and existence, it provides for no further court of appeal.

Schopenhauer himself claims that his position here is based upon the Kantian doctrine of space, time, and causality (the other Kantian categories being discarded). But his claim cannot be altogether acknowledged. Kant's doctrine does not provide him with a real defence for his starting from "facts of consciousness," but he rather tends to interpret Kant in the light of the assumption underlying this phrase, and to make it secondary to that assumption. Kant was in the main concerned with the question of knowledge, and he never raised the question concerning the existence of a thing-in-itself. He never put that existence in doubt, but he did so with the knowledge of such existences. He simply held that, in so far as things-in-themselves appear to us or are known by us, they must appear under the conditions of space and time and of the categories of the understanding. A knowledge of objects, according to him, involves the operation of these *a priori* forms, and is thus, in part, subjectively determined. Schopenhauer, however, confuses knowledge and existence, and interprets Kant as if he had maintained that the mind, through its *a priori* forms, created the world of things, not that the mind conditions our knowledge of things through these forms. Hence, for Schopenhauer, the objective world and its order do not exist unconditionally and in themselves, but arise in the intellect (or even the brain whose function the intellect is) and exist purely in it. This doctrine is simply due to the assumption underlying Schopenhauer's thought that consciousness is fundamental and primary; and all that Kant's doctrine justified him in maintaining was that our known world is conditioned by the knowing mind.

This divergence from Kant leads Schopenhauer into a position which his professed teacher was careful to avoid—namely, that the world of space and time is an illusion. Through his confusion of knowledge and existence, space and time become not merely the conditions of knowledge, as with Kant, but, at the same time, conditions of the existence of a world of things. In consequence, Schopenhauer gives a turn to the Kantian theory which Kant himself saw was possible but declined to follow. Where Kant sees merely a limitation of knowledge, Schopenhauer sees a world of illusory existence; and while the former holds that spatial and temporal properties are rightly ascribed to the objects of knowledge, the latter maintains that such attributes only seem to belong to objects. For Schopenhauer it is the intellect which gives rise to, and determines through its forms the character of, the objective world. Space and time are what he calls "principles of individuation," and without them there would be no world of spatially separate, distinct, and different things. It is they to which the world owes its apparent nature as consisting of a number of things spatially and temporally separate and distinct. The difference here between Schopenhauer and Kant arises from the fact that the former regards space and time as forms of the intellect after the analogy of secondary qualities which exist not in the thing but in the knowing subject. Hence the spatial and temporal attributes of things which are known are viewed by him as secondary qualities, belonging not to the things but due to the subject; and Kant expressly rejected this interpretation of his view.[1]

Though the Kantian view of space and time as *a priori* forms of intuition (and, consequently, Schopenhauer's view) is itself open to criticism, yet Kant succeeds in securing due recognition for the spatial and temporal elements pertaining to objects. Schopenhauer fails in this, and, as a result, is unable to conserve individuality philosophically. Individuality is not to be confused with individuation and is not exhausted in spatial and temporal factors, as Schopenhauer shows a tendency to view it; yet these factors do serve in part to characterise it; and where they come to be regarded as merely seeming to belong to individuality, the latter runs the danger of being accepted as an illusion.

[1] *Par. u. Paral.*, Band II., § 30, § 68. *Die W. als W. u. Vorst.*, Band I., §§ 25, 61; Band II., Kap. 15, 22, and especially Kap. 2. *Vid.* Kant's *Critique of Pure Reason* (Meiklejohn's translation in Bohn's Library, p. 42).

V.

Schopenhauer's illusionism has a second source, however, besides his view of the intellect with its forms of space and time. This source is the knowledge which he definitely claims to be possible of the thing-in-itself. Such a knowledge is obtained when we sink most deeply into ourselves ; and we then discover that the thing-in-itself is will. How, after all, even on Schopenhauer's view, this knowledge can be admitted remains obscure. To render it philosophically possible he reduces the ultimate condition of knowledge to the subject-object relation,[1] but the difficulty still remains as to whether the knowledge of the will, even on this condition, can be any other than piece-meal (as Schopenhauer himself grants it to be, since it still takes place under the condition of time)[2] and phenomenal (as Nietzsche later maintained). Nevertheless, given this knowledge which Kant held was impossible, Schopenhauer uses it as a lever in his argument to establish the external world as an illusion.

The effectiveness of the argument, however, is destroyed through the assumptions involved. The outer world of things is degraded by comparing it with the inner real world of will. Why the will should have this superior significance attached to it is left unjustified. The ascription of attributes to the will and of attributes to the outer world is made quite arbitrarily. The fact that the will is one and undivided or that unity alone is applicable to it while multiplicity is found in the world of things does not testify to any superiority of the will. But even such a distinction, apart from the assumption that a unity possesses some mysterious value which does not attach to a multiplicity, is, on Schopenhauer's view itself, untenable, for the will is said to have various functions, the objectification of which constitutes the outer world. Multiplicity is thus characteristic of it. And, further, if the relation between the thing-in-itself and the external world is what is expressed as objectification, the difficulty is to see why the "inner" should be real and its objectification an illusion. The difficulty is one similar to what arises in Spinoza's theory which starts with the parallelism of Thought and Extension but which in its course insinuates gradually a

[1] *Die W. als W. u. Vorst.*, Band I., *Anhang-Kritik der Kant. Phil.* In the same work, § 23, he himself says : "The most general form of all ideas, that of the object for a subject, does not apply to it (*i.e.*, the thing-in-itself)".

[2] *Die W. als W. u. Vorst.*, Band II., Kap. 18.

pre-eminence to Thought or mind, that is, to the subjective.

Underlying Schopenhauer's doctrine of the thing-in-itself, again, is an inadequate view of the will. In spite of the fact that he maintains we must make man the starting-point in an explanation of the world, he proceeds at once to divest the will of the element of knowledge and to argue that the will is something quite apart from the knowledge found attaching to it in man's experience. One result of this is to make the will a mere abstract identity (and hence, of course, Schopenhauer's view of it as a unity) and to find it present as one and undivided in everything. It is on this pure abstraction that his principle of sympathy or total disinterestedness rests; and simply because all differences are eliminated, because each individual is abstractly equal or because it is the same will in each, complete egoism is as much justified as pure altruism.[1] A second result is that what is usually called the content of the moral life—ends, purposes, objects sought, etc.—does not form an integral part of the will. That content belongs merely to the world of appearance.[2] The moral life, in consequence, becomes something illusory; all that Schopenhauer can see in it is but a restless movement of the will which accomplishes nothing positive and is for ever doomed to disappointment. His view of the world of objects as the objectification of the will precludes his seeing in objects a primary condition of any volition. He seems to be too much under the influence of metaphysical essences, and to ascribe to the will too much of the nature of a substance. In the will, not in the bodily organism, are rooted all the wants and needs which fill up life. Ignoring the concrete conscious organism and taking his stand upon an abstract will, ignoring the relation of the conscious organism to the world of objects in which the will finds scope for its activity, Schopenhauer confines the individual to the inner world of emotion and feeling, deprives the will of any goal, and opens the door to a complete moral illusionism. The conception of the will as an effort after higher forms of life through the medium of an environment does occur to him and he makes use of it in his more dis-

[1] Altruism is accepted without qualification as the only moral line of action. Yet altruism cannot be pursued without discrimination. The question of the values involved must be considered, and this is impossible for Schopenhauer, because he ignores all differences between individuals.

[2] *Par. u. Paral.*, Band II., § 68.

tinctively biological theory of the origin of species,[1] but it is an adventitious line of thought, and he does not develop it for ethical purposes.

The inadequacy of Schopenhauer's view of the will appears very clearly in what he calls the pure objectivity of the genius and in the negation of the will. He seems to hold that in the attitude of the artist and the musician the will disappears, and that in the saint it is destroyed. Yet we find here really as definite an act of Will as in the satisfaction of hunger. The reason why Schopenhauer thinks otherwise is, in the first place, that he divorces end from the will and confuses the will with bodily wants and cravings; and, in the second place, that he misunderstands individuality and the relation between it and the will. The difference between the satisfaction of hunger and the attitude of the artist is not the presence of the will in one case and its absence in the other, but a difference in the end and its attainment.[2] Nor is the difference between the two the presence of individual and subjective elements in the one case and the transcending of individuality or the elimination of all subjectivity in the other. Schopenhauer seems not to distinguish clearly between individuality and egoism or subjectivity. Every act of will involves individuality both because the will is that of an individual (Schopenhauer, on account of his abstract view of the will, seems to think that there can be an impersonal will or a will which is that of no individual) and because the end pursued is an end for the individual himself and is bound up with his personal life. This fact does not in the least imply that every act of will is egoistic, or that the knowledge accompanying every act is subjectively coloured; but Schopenhauer holds that it would be so, because individuality for him is a purely subjective creation, being the body as an object in space and time, and existing only for the knowing subject. Hence he maintains that objectivity is the transcending of individuality,[3] or,

[1] *Die W. als W. u. Vorst.*, Band I., § 27. *Par. u. Paral.*, Band II., §§ 93, 94.

[2] The difference which Schopenhauer notes is that between an apprehension of parts within a whole, and an apprehension of the whole itself. The question at issue is one of emphasis upon the parts or upon the whole, and the emphasis upon the one or the other is dependent upon individual interest and purpose; though an apprehension of the whole, on account of the synthesis involved is not open to every one through deficiency in that power.

[3] *E.g.*, in *Die W. als W. u. Vorst.*, Band I., § 33, he maintains that the subject, in knowing an Idea, ceases to be an individual. *Cf.* also Band II., Kap. 15.

what is the same thing, of space and time, and that in this objectivity the will, which with its subjectively coloured knowledge is concerned in satisfying the wants of the body, disappears. Rather it should be said that in an objective attitude—whether that of the artist, pure altruism, or the saint—individuality, instead of being transcended, ought to be most fully realised; but if this is to be maintained, it will be necessary to discard Schopenhauer's view of the world and of individuality, as well as of the will.

VI.

There are passages in Schopenhauer which suggest that, in his making the will the thing-in-itself, he was groping after a conception of much deeper significance than that to which he does actually attain. He speaks of a deeper individuality than that manifested as spatial and temporal qualities,[1] and he finds it to be a will which is the same and undivided in all men and which thereby constitutes an identity between men more fundamental than the superficial differences due to space and time. The conception which he seems to be striving after is that of community and, with it, that of value. He might be interpreted as meaning that the core of true individuality is the will, for individuality involves community, and the basis of community is to be found in the nature of the will. It might be possible, also, to explain on this ground why he degrades the external world to illusion, and regards the will as the thing-in-itself: the will has the greater significance, because it is in connexion with it that the element of value is to be found. The line of thought suggested would be that individuality, whose nature is to be found in the will, is the source and standard of value, and that the external world has a value only as a means to individuality and is consequently of secondary rank.

Schopenhauer, however, does not attain such a conception as this; and the reason is, that he misunderstands the will, fails in a theory of value, and cannot, consequently, do justice to individuality. Eliminating end or purpose from the will,[2] he seeks to find community in the presence of a

[1] *Par. u. Paral.*, Band II., § 117. *Grundlage der Moral*, § 22. *Die W. als W. u. Vorst.*, Band I., § 66, § 68.

[2] *E.g.*, he holds that the struggle for existence is blind and in no way dependent on a knowledge of the objective worth of life. If he had recognised end or purpose as essential to the will, his view that every injury done by one person to another means the addition of so much more suffering to be borne by the one will and that the will performs

metaphysical essence running through all men and forming a common substratum, or in an abstract inner identity, instead of in the existence of a real world of objects standing in relation to each individual and providing a common basis of action. Regarding the world of objects as illusion, and failing to appreciate the relation between objects and the will, he deprives himself of any solid foundation for a theory of value: it remains for him to seek value either in the inner world of will, that is, the life of emotion and feeling as he understands the will to be, or else somehow still in the objective world. As a matter of fact, he seeks it in both. One attempt is seen in his view of the Universal—the Ideas and the species—to which he ascribes a higher value than to the individual; and a second is seen in his hedonism which is merely a belated and insidious effort to recognise the claims of individuality and which is a sort of counterblow to his Universalism. Schopenhauer is really unable to formulate a theory of value which could reconcile the two.

Schopenhauer's theory of knowledge renders illusory the spatial and temporal aspects of individuality; and his theory of the will—partly psychological, partly metaphysical—fails in its account of that deeper aspect of individuality which consists in the participation in a common life. The nature of individuality completely escapes him; and he is consequently deprived of the possibility of finding in it the clue to the meaning of life. So far as his hedonism is a disguised attempt to do so, he is led astray by a false psychology, with the result that theoretically life becomes worthless. The ethical result is that altruism cannot even be justified and that true moral conduct must consist in complete antagonism to all the positive content of life. On the metaphysical side, the ceaseless change in Nature is interpreted as being identical with the restless movement of the will. Unlike Hegel who, on relegating the individual to a secondary place, has recourse to the State as that in which the meaning of existence is to be found and in which the individual finds his being, Schopenhauer, viewing the State as purely a means to the adjustment of rival claims and not as an end, dissolves the individual in the unceasing movement of a goal-less world-will and makes him a mere instrument in the hands of Nature. Inheriting, however, from Kant and Plato a thirst after the Universal, he endeavours by means of the

the tragedy of life at its own cost, would have been very significant. The way would have been opened for the recognition of the interdependence of the members of society, and of the co-operation of all in a common life and for the realisation of common values.

Ideas or species, to modify somewhat the meaningless and worthless character of the world arising from his failure to do justice to individuality. He seeks to see in Nature an effort to preserve the Ideas or species; and as, on this view, it is in these that value resides, the world-process still strives to conserve the values that have been created. The consequence is that his ethical views contradict his metaphysical theory, and that the ethical life becomes directly opposed to the world-process. He teaches in his ethical doctrines, which he bases upon a hedonistic view, that the highest moral conduct consists in rooting out the species by a deliberate negation of the will to live, while in his metaphysics of the will he argues that the species cannot be destroyed, for the world-process always maintains a balance and makes enormous sacrifices to secure the perpetuation of the species. In the conflict between the individual and the world-will, symbolised by Nature, Schopenhauer leaves untold which shall gain the day.

The source of the difficulty lies, on the metaphysical side (on the ethical it is in his false hedonism), in his view of the universal and its relation to the individual. The movement of the world-will which secures the preservation of the species is not one in which the worth of individuality is conserved. The individual plays the *rôle* of a mere means, and there is no conception of a Good which is to be a good of the individual and in which his nature is to attain fulfilment. Blind and indiscriminate sacrifice everywhere takes place. The universal, instead of being regarded merely as a relation between individuals or else as a quality of the individual life, becomes established into an independent being. Instead of being rooted in the nature of individuality, it becomes the root from which the individual springs; instead of its permanence being ascribed to it because of its secondary nature as a value for successive individuals or because of its being a basis for the realisation of common values by individuals, its value as something supreme is ascribed to it because of its permanence. Its permanence is first assumed; and it is lost sight of that this permanence belongs to it in large measure because it is an abstraction of thought, and that, in the concrete, species themselves arise and become extinguished, their seeming permanence in relation to the individual being merely a matter of perspective.

V.—A DISCUSSION OF A CERTAIN TYPE OF NEGATIVE PROPOSITION.

By Raphael Demos.

In this article, I propose to discuss such negative propositions as are particular, that is, propositions like "I will not attend Prof. B.'s lecture," or, "Leather is not as cheap this year as the year before," or, "Mr. Smith was not feeling well last week". I shall take no account of general negative propositions, that is, of propositions like, "What is white is not black," or, "No man shall escape death". Again, of particular negatives, I propose to select for discussion primarily simple negatives, postponing consideration of double or 'n-ple' negatives to the end of this paper. In dealing with such particular simple negative propositions, I shall speak simply of "negative propositions," avoiding the longer and more awkward expression, and my aim will be to discover the definition of the negative propositions of the sort in question, that is to say, their general form and their relation to the total field of propositions. I propose to lead up to the constructive contribution of this paper by stating what, in my view, the negative proposition is not.

(*a*) A negative proposition is not dependent upon the cognitive subject in its definition; consequently, it is perfectly objective, not merely as a proposition, but in its character as negative as well. I refer here to that view which defines a proposition to be negative in so far as the cognitive subject denies it, and positive in so far as the latter affirms it, and, more generally, endeavours to account for this difference between propositions in terms of a difference in cognitive attitudes. Such a view is untenable because a specific correspondence such as it presupposes between character of proposition and character of attitude does not exist. Moreover, any work on symbolic logic contains many propositions as members of deductive systems. There, no attitude seems to be involved, and yet the propositions are not devoid of their peculiar character as positive or negative. I shall not further labour my point because thinkers nowadays seem to be practically agreed on its validity.

(*b*) The negative proposition must not be taken at its face value. The reason is as follows: At its face value, the negative proposition appears to be co-ordinate with the positive proposition but different from it in form, and to correspond, in the world of external objects, to a fact different in type from a positive fact. Thus, the negative proposition, "Mr. X is not at home," seems to be formally different from the positive proposition, "Mr. X is at home," and in so far as true, to imply the corresponding negative fact "that X is not at home". Hence a view which adopted appearances would have to add to the world of positive propositions a new class of propositions which are negative, and to the world of positive facts, a new class of *negative* facts. Now, the reason why such a view must not be entertained is the empirical consideration that strictly negative facts are nowhere to be met with in experience, and that any knowledge of a negative nature seems to be derived from perception of a positive kind. I once undertook a fairly systematic interrogation on the matter among intelligent acquaintances who had not given previous thought to the subject and hence were least apt to be biased in their reply, and they were practically unanimous in their testimony that they had never encountered a negative fact and that every case of knowledge expressed through a negative proposition was in reality of a positive nature, in a fashion which they were unable to comprehend. Consequently, unless the verdict of experience is to be flouted, the conception of negative facts must be rejected, or at least not adopted before the resources at the command of the conception of positive facts and propositions are given a fair chance to account for the situation.

The above discussion yields the following positive result: Granting that there are no negative facts, then, in so far as a negative proposition is asserted of fact at all, the term of reference must be the world of positive facts. Hence, appearances must be discarded and a *special interpretation* given to the negative proposition, which shall allow of such reference. The clue for such procedure lies in the distinctive element in the negative proposition, namely, the element symbolised by the word "not".

(*c*) But here again a certain reservation must be made. The interpretation suggested must not take the form of regarding "not" as a qualification of the predicate of the negative proposition, *e.g.*, of defining a proposition like "X is not white" to be really "X is not-white". I have in mind the general view which makes the peculiarity of the negative proposition appear to be a peculiarity of the predi-

cate and is thus enabled to define the class of negative propositions as simply a subdivision in the class of positive propositions, a subdivision namely of all those positive propositions that contain a " not "-predicate. My objections to this view are as follows: First, the negative element bears upon the grammatical subject almost as often as it does upon the grammatical predicate of the proposition. I may assert that God will not provide because I believe that there is no God, as well as because I believe that He is non-provident. Secondly and more important, a large number of propositions, and specifically relational negative propositions like " X is not to the right of Y," cannot be said to have any predicate at all.

We have thus far seen that (*a*) a negative proposition is an objective entity, in all respects independent of the cognitive subject; (*b*) it must not be taken at its face value, but must be so interpreted as to exhibit itself as referring to the world of positive facts; (*c*) the interpretation must bear upon the element " not " in the proposition but must not take the form of regarding " not " as a qualification of the predicate in the proposition. In embarking now upon the positive task of finding out which is the true interpretation of the negative proposition, I shall follow out the clue already indicated. Evidently " not " is a qualification, not of any individual element in the negative proposition, *but of the whole content of it.* Thus the statement, " X is not dead," is really of the form " not (X is dead)," and any negative proposition is of the form " not-p " where p is the entire content of the proposition apart from " not," and " not-p " is a function of p in terms of " not ". Inasmuch as this content of the negative proposition is positive, any negative proposition may be regarded as a negative function of some particular positive proposition.

What is the nature of the modification effected in terms of " not "? The reply is that " not " is a relational modification of p, and means " opposite of " or " contrary of ". Thus, " John is not at home," or " not (John is at home)," means " an opposite of (John is at home)," and the statement, " I believe that John is not at home," is really the statement, " I believe a contrary of (John is at home) ". To explain,—every relational term is the source of some qualifying expression; thus, the relation of " begetting " is the source of the qualifying expression " father ". Now, there is a certain relation among propositions which, in accord with traditional usage, I shall call the relation of opposition or of contrariety or of inconsistency, and which gives rise to the qualifying

expression "opposite," or "contrary," or "inconsistent with". The word "not" is precisely a symbol for this qualifying predicate, and "not-p" means "opposite, or contrary, of p". The relation of opposition is such that if p opposes q, p and q are not both true (at least one of them is false). This must not be taken as a definition, for it makes use of the notion "not" which, I said, is equivalent to the notion "opposite". In fact, opposition seems epistemologically to be a primitive notion. The relation of opposition must be, moreover, distinguished from the relation of contradiction; the fact that contradiction obtains among two propositions implies not only that not both are true but also that not both are false.

I shall now suggest that negative propositions in the form "not-p,"—meaning "opposite of p,"—are *descriptions of some positive proposition*. However, before I elaborate this point, I shall proceed to analyse the concept of description as such, making use of Mr. Russell's contribution to the subject (see MIND, N.S., vol. xiv., pp. 477-493, article "On Denoting"; also "Principia Mathematica," pp. 31-33, 66-88, 181-216). (*a*) Descriptions are all expressions which are of the form "a so-and-so" or "the so-and-so". Any entity enters into relations or possesses properties which are said to describe it, and expressions of the above form are called descriptions in so far as they constitute mention of some relation or property of some object. Thus, the expression "servant of Y" is a description of X, through mention of the relation of service which X sustains towards Y. (*b*) A description is definite when it is satisfied by one object only, and ambiguous when satisfied by more than one object. Thus "present president of the U.S." is a definite description, and "Harvard student" an ambiguous description. (*c*) It is important to note that the object described is not a constituent of the description. The description is of the form "some object which is so-and-so," where we have a variable ("some object") and a function ("so-and-so"), but not the actual object. (*d*) Now, descriptions are instruments of reference to some particular object to which they apply whether definitely or ambiguously. When I speak of the servant of Y, saying, let us suppose, that he is sick, it is to X that I refer, and I mean that X is sick. But in so far as, in reference by description, the object described is not a constituent of the description, the object is not a datum to the cognitive subject referring, and in a proposition in which reference is made to an object by description, the object is not a constituent of the proposition about it. Any example will make this

obvious. By means of the description, "the winner of the next Marathon race," I am referring to some object, but I am not acquainted with it. Again, in the proposition, "The servant of Y is sick," reference is made to X, but X is not a constituent of the proposition. Thus, in terms of description, reference to objects is achieved without the occurrence of the latter as data in the complex of reference. Now, if "mention" (or "statement") is defined to mean reference to an object such that the object referred to is a constituent in the complex of reference, then reference by description may be said to be *reference without mention* of the object.

It is as a descriptive phrase in the above sense that the reader is invited to regard the negative proposition, and more particularly as an ambiguous description of some positive proposition in terms of its opposition to some other positive proposition. It has been already pointed out that between two given propositions the relation of opposition may obtain. (*a*) Now, a negative proposition, such as "not-p," that is, "an opposite of p," is a description of some positive proposition q, in terms of its opposition to p, just as "a servant of Y" is a description of X in terms of X's serving Y. More specifically, a negative proposition like "John is not at home," that is, "not (John is at home)," that is, "an opposite of (John is at home)," constitutes a description of a positive proposition, like "John is at the shop," or "John is in the fields," in terms of its opposition to the content "John is at home". (*b*) Inasmuch as there may be several propositions contrary to a given proposition, a negative proposition interpreted to mean "an opposite, or, a contrary of p" is to be regarded as an ambiguous description. (*c*) In a description, any negative proposition is an instrument of reference to some particular positive proposition to which it applies, and in any complex involving a negative proposition reference is made to some positive proposition of which the former is a description. *E.g.*, when I say, "I agree that this is not all mine." *i.e.*, "I agree with a contrary of the proposition 'This is all mine,'" I refer, say, to the proposition. "Some of this is yours," and I really mean "I agree that some of this is yours". (*d*) It must be pointed out next that reference to a positive proposition in terms of the negative proposition describing it is achieved without having the former as a datum to the subject referring, or, in general, without having it as a constituent in the complex of reference; in a word, it is reference without mention. *E.g.*, in saying, "I believe that John is not at home," I am referring to the positive propo-

sition, say, "John is at school" (as that which I believe), but I do not state it. Thus, though negative assertion is in every case reference to some positive proposition and, hence, in a sense is assertion of something positive, no analysis of negative assertion could yield a trace of a positive proposition. In this respect, we may characterise negative assertion as always positive in reference but never positive in content.

(*e*) There is still one more point to be made about the structure of the negative proposition. A descriptive phrase is incomplete as it appears, and needs to be supplemented by an assertion of the existence of the object described if all its meaning is to be made explicit. The exclamation, "Rain!" is really of the form, "It is raining," or, "*There is rain*," and the proposition, "I saw the servant of Y," is "*There is one who is the servant of Y and I saw him*". That existence is thus implicitly asserted is evidenced by the fact that exception may be taken to the above proposition by the retort, "But Y has no servant," or, "There exists no servant of Y". Hence, negative propositions are incompletely stated and, in order to have their whole meaning made explicit, must be supplemented in their stated content by assertion of the *truth* of the proposition described —truth being to propositions what existence is to things. Corresponding to the exclamation of the simple phrase we have the assertion of the negative proposition, and just as "Rain!" is really "Rain exists" ("There is rain"), so "not-p" is really "not-p is true," or "an opposite of p is true," or "some proposition is true which is a contrary of p". In general, in negative assertion I am referring descriptively to that proposition which is true. Thus, when I say that "John is not at home," I have reference to where, as a matter of fact, John is, that is, to the true proposition about John, and my statement is "An opposite of 'John is at home' is true," or, "The true proposition (the truth) is an opposite of 'John is at home'". In actual usage, it is understood that in assertion one is dealing with the proposition which is true; consequently the statement to that effect is omitted and only the description of q, namely as "not-p" is given. Thus, instead of "A contrary of 'X is white' is true," we have only "A contrary of 'X is white'" or, "not (X is white)," or "X is not white".

We are now ready to give a summary definition of negative propositions of the sort we are discussing. A particular and simple negative proposition is of the form "not-p is true," where p is any positive proposition, and "not" means "an

opposite or a contrary of". As such, a negative proposition constitutes a description of some true positive proposition in terms of the relation of opposition which the latter sustains to some other positive proposition.

The following example from actual usage will exhibit, in concrete fashion, all that the above definition signifies.

Suppose you ask me where John is and suppose I reply "John is not at home," what is it that I convey in my reply? In asking me where John is, you are asking for the truth about John, *i.e.*, for a true proposition as to John's whereabouts. Now, I know that John is at the store, *i.e.*, I know that the true proposition which you are looking for is, "John is at the store". I may reply to your question simply by stating this proposition, or again I may refer to it indirectly, that is, I may *describe* the truth. Actually, I choose the latter alternative and reply by describing the true proposition. The true proposition "John is at the store" is in fact a contrary of "John is at home," and hence may be described as a proposition which is a contrary of the latter. Thus, in reply to your question as to the truth about John, I furnish the statement "The true proposition, or the truth as to John's whereabouts, is a contrary of the proposition, "John is at home". However, as it is understood that I am referring to the true proposition, I make no mention of that, and in my reply I give its description only, *i.e.*, I state "a contrary of 'John is at home,'" or "not (John is at home)," or "John is not at home".

Substantially, the above definition of simple negative propositions applies to double and 'n-ple' negatives as well; the latter, too, are descriptions of positive propositions which are true, in terms of what they oppose. There is this difference, however, that whereas simple negatives are functions of a positive content, double and other negatives are functions of a negative content, such that any negative proposition in the n-th power is a function of a content which is negative in the (n-1)th power.

Through the definition of negative propositions just offered, the world of positive objects is re-established as the ultimate term of reference in all assertions of a particular nature. Negative propositions refer to positive propositions and positive propositions in their turn assert positive facts. In both cases there is reference to the latter, but in the first case the reference is indirect, and in the second direct. From this angle, a negative proposition may be defined as a referent to a referent or a description of a description.

Negative *knowledge* may be defined as knowledge of a true

positive proposition by description in terms of its opposition to some other proposition. This type of propositional knowledge is one in which the cognitive subject does not apprehend the proposition to which he is referring. On being informed that X is not over twelve years old, I come into possession of knowledge which is positive in reference, inasmuch as it is about the positive proposition concerning X's age, namely knowledge that the truth about X's age is not that X is over twelve, or "that X is over twelve is contrary to the truth," but it is negative in content because I do not know what X's age *is*. It is thus knowledge *about* the positive proposition and not knowledge *of* it.

I have already hinted at my indebtedness to certain notions and definitions of which Mr. Russell has made use in his treatment of classes and descriptive phrases in general. I have tried to apply to negative propositions the treatment which Mr. Russell has applied to simple descriptive phrases or incomplete symbols. After all, my problem is identical with his. He found himself confronted with the fact that to accept descriptive phrases as significant in their given form, would be to people the world of things with the apparent objects of such self-contradictory and fantastic descriptions as "round-square," "centaur," etc. I was faced with the fact that to accept negative propositions at their face value would be to people the world of objects with negative facts, a type of objects which experience fails to disclose. Mr. Russell solved his problem, partly, by declaring descriptive phrases to be devoid of meaning in their apparent form, and their apparent object to be consequently nothing. I, too, by viewing the negative proposition as an incomplete symbol, have been led to declare it meaningless in its apparent form, and its apparent object—the negative fact—to be nothing. The parallelism in the further treatment on the one hand of simple phrases by Mr. Russell, and on the other of negative propositions by myself, such that the former are supplemented by an assertion of existence, and the latter by an assertion of truth, is obvious.

To recapitulate: in this article I have stated, first, that a particular simple negative proposition is an objective entity whose peculiarity as negative is not dependent upon the mind's attitude towards it. I then argued that the negative proposition cannot be construed in the form which it apparently possesses, inasmuch as such construction would make it formally different from positive propositions and would endow it with purely negative objects, which, after all, are not to be found in experience. I concluded that

some special interpretation must be given to the negative proposition, and proceeded to show that its negative element is a modification not of any distinct constituent in the proposition but of the whole content. Thus any negative proposition is a modification, in terms of "not," of the rest of its content,—and, since the latter is positive,—a modification of some positive proposition. I stated the meaning of "not" to be "opposite,"—a relational qualification in terms of the familiar relation of opposition or contrariety among positive propositions,—and hence the meaning of the whole proposition "not-p" to be "opposite of p". I argued that, so stated, a negative proposition is an ambiguous description of some positive proposition, and that completely stated it is of the form "an opposite of p is true," or "some q is true which is an opposite of p". Thus I defined a particular simple negative proposition as an ambiguous description of some true positive in terms of the latter's opposing a certain positive proposition, such that, in terms of the former, reference is achieved to the latter. I explained that negative assertion or knowledge is reference to (or knowledge of) a true positive by description, and hence must be characterised as positive in reference but not in content, inasmuch as the proposition referred to is not a constituent of the complex of assertion or knowledge.

VI.—DISCUSSIONS.

CAUSALITY AND IMPLICATION.

Dr. Mercier's remarks on my note upon Causality and Implication come to me opportunely. For I have at last been able to study his *New Logic*, to which, but for the pressure of other work I should before now have given the attention it certainly merited. In observing shortly upon his criticism of my note, I think I can indicate the outline of my attitude towards his treatise, though anything like an adequate discussion must be deferred to another opportunity.[1]

1. Are the questions of reciprocity in Causality and in Causal Implication the same? For me they are. I follow so far Dr. McTaggart's view that Causality is a relation of Implication. I shall refer below to his argument, which I accept, that the popular conceptions of the distinction between cause and effect are untenable.

2. Dr. Mercier means by implication the relation of two propositions which say the same thing in different words. He does not admit that implication can ever carry you to any conclusion which is *bona fide* new. His "reciprocity" is a case of such implication and is limited, of course, in the same way. It is the relation between such propositions as "I strike him," and "he is struck by me". His whole theory of Deduction rests upon his view of Implication, and because of it, is prevented, as I think, from solving any serious logical problem. It is plain, however, that Dr. Mercier comes very near at times to a wholly different conception, when his language all but admits that his theory puts a strain on the facts.[2] He comes very near to admitting that implication can involve *bona fide* differents, connected within the context of a single system. If he had said this, he would in my opinion have said something important and relatively new.[3]

[1] Dr. Mercier's new work *Causation and Belief* was not before me when this paper was written. It does not appear to modify the main structure of his views, though it raises certain points of interest.

[2] *E.g.*, *New Logic*, p. 246. "The two propositions [one of which implies the other] look at the same fact from different points of view. The attention is directed to different aspects of the same fact."

[3] See, however, below on Mr. Bradley's and Mr. Joseph's works on Logic.

3. I mean by *true* or *genuine* implication a relation of propositions (ultimately of facts) such that if A is true, B, which may be a *bona fide* different proposition, must be true; and the same with facts being real. I do not think my definition is substantially different from Dr. McTaggart's. It only insists more on the point that if you mean to see the relation of the two propositions or facts, you must supply a sufficient context to make them intelligible. How this can be, is a matter of the theory of implication, which I take to be the very heart of Logic. I cannot develop it here, but in places such as that referred to above Dr. Mercier, in my opinion, comes near it.

4. I mean by *reciprocal* implication the relation in which A implies B, which may be a *bona fide* different proposition, and B, in turn, implies A. What we respectively mean by the word reciprocal is of course a verbal question. I think my usage is in accordance with everyday custom and with common sense. I call it reciprocity when I do to you what you do to me (not, as Dr. Mercier, when I do to you what you are done to by me). Reciprocity in trading preferences is a common phrase. It is not reciprocity "ubi tu pulsas, ego vapulo tantum". But if we understand each other the question of usage is a trifle.

5. Taking causality as a case of implication in this sense, I began by a presumption drawn from the nature of implication in general. This brings in geometrical and other relations of coexistence, which are not called causal, but which illustrate the nature of implication.

Speaking of all these relations, including causality, I say first that implication, by which we pass to *bona fide* new truth, has to be recognised as the essence of logical reasoning, whether "inductive" or "deductive"; and secondly, that where, in a context[1] sufficient to make a relation A intelligible, you can see that it inevitably carries B along with it, then, given a context sufficient to make B intelligible, you will be able to see that B in its turn implies A.

Geometrical examples are the simplest, such as that if a triangle is equilateral it is also equiangular, and *vice versâ*. But I hold it all important to note that the principle—that of reasoning from interdependence in a system—is not confined to mathematical matter. The interdependence of relations within such a system as the British Constitution is a good working example. It is a result of the nature of that system that ministers can remain in power if they have the confidence of the House of Commons, and if they have the confidence of the House of Commons they can remain in power. To see this, you must know and understand the constitution as a systematic whole.[2] So you may see that in a well-adjusted electrical installation if

[1] This is what I mean by a "complex". A construction in Euclid is a good instance.

[2] Or complex.

a fuse is blown there was a relative excess of current, and *vice versâ*. And in common induction, it is my doctrine, a presumption of this kind, and not an observation of constancy in experience, is in general the primary ground of the conclusion. I claim for this view the unconscious support of Dr. Mercier;[1] where he speaks of the subsumption of relations under wider relations such as causation, pointing out that the mortality of men has behind it the constant experience—I should say the obvious insight—that organisms are liable to death[2] and, I should add, death is a character peculiar to organism.

6. Dr. Mercier adduces instances, and rejects mine. I have often pointed out, and we shall see that in a very wide class of cases I am in agreement with Dr. Mercier, that you cannot, in reasonings or presumptions of this kind, deal with conjunctions of whole concrete things. Their practically infinite properties are sure to give rise to irrelevances, which make it impossible to see a necessity that they, as contrasted with certain abstract characters within them, should be universally conjoined. We shall see that this principle is recognised by Dr. Mercier, and it disposes of his instance of the whale and the remora, and of his criticism of my examples drawn from concave and convex and from heart-stoppage. You cannot, I take it, see a universal necessity or even a presumption that every whale should have a remora adhering to it, and therefore also not that every remora should be sticking to a whale. On the other hand, the fact that the rest of a thing which has one concave surface may be shaped anyhow you please, surely does not prevent that concave surface from being regarded as also convex. Every boundary is two sided, I should have thought, and outlines two surfaces. But it does not much matter—obviously if taken as stating a relation of shapes in actual pieces of glass the proposition is absurd; it is about a conjunction purely accidental and loaded with irrelevances. So about heart-stoppage. Dr. Mercier argues that death does not imply heart-stoppage because a heart can be kept beating after it is taken out of the animal. But this is the very frenzy of formalism. We are arguing in good faith as to what follows in principle from the functioning of the circulatory system, and we are confronted with the behaviour of a central organ when withdrawn from it. But surely the positive grounds of our reasoning here are plain, and are at least not negligible. Dr. Mercier, not here only, seems to me to suffer from an excess of formalism and a want of interest in the aim and spirit of thought.

7. These objections of fact are, as I have said, irrelevant, unless they are meant to support a contention that no such thing as true reciprocal implication—reciprocal implication of genuine differents—exists. Because it is as a matter of degree, as a

[1] *New Logic*, pp. 211, 215.

[2] I do not say this is theoretically certain. But it is a reasonable presumption.

presumption which is logical in spirit but not formal, that I claim it to pervade what is called Induction.

Now primarily, no doubt, Dr. Mercier, as we have seen, denies what I call true implication altogether. But in any case, he seems in the remarks before us, to go the whole length of denying reciprocal implication of this kind to exist at all. If that is his position, of course, his rejection of my instances would so far support his case. He does not think you ever can have insight not merely that If A is B is, but that if A is not B is not. He says you can only go to such a result by experience and not by insight. Before arguing from his admissions elsewhere, let us look at a fact. I see that if the radii are equal in a plane figure it is a circle; If the radii are not equal it is not a circle; If it is a circle the radii are equal. Surely our insight apprehends all these propositions at once in connexion. I cannot think the result rests on experience, if that means repeated observations. Of course we must have before our minds the experience of what a circle is—a certain complex. But so firmly does he deny everything that belongs to this implication that he here reproaches me with affirming a deductive inference equivalent to the simple conversion of A. Now I admit that I hold a view of this kind, and though I must not defend it here at length, what I shall say below will throw light on it, and, as I think, show Dr. Mercier to be my fellow-sinner, so far at least as one immense class of cases extends.

8. And this class of cases covers the whole ground on which Dr. Mercier primarily challenged me. For what I have been discussing so far was merely a presumption resting on the most general nature of implication, that if there is no irrelevance on either side, it holds both ways.

But the ground Dr. Mercier took up, following the subject of my note, was the ground of Causal Implication. Now here, I think, he has himself dallied with my heresy, or rather, has swallowed it whole. Let me cite what seems to me a decisive passage.

"It would be impossible to argue from one case of causation to another unless it were assumed that in experience causation is constant; that the same cause always produces the same effect, and the same effect is always due to the same cause.[1] This relation between cause and effect is in fact constant in experience."

Here Dr. Mercier makes it a condition of causal reasoning in induction that we go beyond the ordinary principle of "same cause, same effect," and assume the more exacting rule of "same effect, same cause".

Now this carries us a long way beyond ordinary views and usage. It at once excludes the plurality of causes; that is, it forbids us to say that death is an effect which may be caused in any of a thousand ways. In every hypothetical judgment that

[1] *New Logic*, 211; cf. 215 on subsumption under wider relations.

expresses a causal relation, it requires us to treat the antecedent and consequent as reciprocals in my sense of the term, denying the rule of formal logic to the contrary with all its consequences. That is to say, not only if there is such a cause there must be such an effect, but if there is such an effect there must be such a cause. It thus requires us to deal with universal characteristics and not with conjunctions of things; for if we take things as causes, "same effect, same cause" is quite obviously false. To repeat a hackneyed instance, you cannot possibly say that the effect of propelling a projectile by an explosive has always the same cause, if the same cause is to mean the same substance. You must designate as cause something general, such as the rapid expansion of gases, if you mean to save the formula.

And the principle further requires the simple conversion of every A proposition which expresses a causal relation—the conversion with which Dr. Mercier reproaches me as an elementary error in logic. If "same effect, same cause" is true, it cannot possibly be true that Arsenic has a poisonous effect, and that a thousand other things have poisonous effects also. You may reply, "But their poisonous effects are not the same effect as that of arsenic". But if you answer thus, you have bound yourself so to define the poisonous effect of arsenic that it shall be distinguishable from every other poisonous effect, and referable to arsenic and nothing else as its cause. Otherwise you have got the same effect with two or more alternative causes, and have deserted your formula. But if you define the effect thus, you have the insight that your A proposition is simply convertible. And no A proposition, expressing causation, which is not simply convertible, can be true if "same effect, same cause" is true.

Now this principle, the reciprocity of causal implication, with all the results I have just drawn out, embodies the view which I maintain, knowing its difficulty, and that it rests on a conception of what thought in its nature aims at, and will accept as satisfactory. I do not think that "Arsenic is poison" is a proposition satisfactory to thought, though of course it has practical utility. And I see again a certain formalism in Dr. Mercier's indifference to this consideration. Many good authorities, notably Prof. Stout, Dr. McTaggart, and Dr. Keynes,[1] differ from me on this question. But all of them, I think, recognise the nature of the problem. Whether Dr. Mercier knew altogether what he was letting himself in for, in the passage which I cited above, I am not perfectly sure. I must admit that in my MS. notes I put opposite that passage the query "Is this innocence"? But that if he maintains the doctrine of that passage he must agree with me so far as the reciprocity of causal implication is concerned, is, I submit, clear to demonstration. The facility of sliding from "same cause, same effect" to "same effect, same cause" without realising the full consequences of the transition, is familiar of course from Mill's double view.

[1] *Formal Logic*, pp. 270-273

9. This enables us to appreciate the argument about drunkenness, which Dr. Mercier treats as sheer confusion. It must be remembered that Dr. McTaggart discusses and rejects the popular distinction between the cause as *causing* the effect, and the effect as only *proving* the cause.[1] Dr. Mercier, therefore, must not assume it without discussion. In the passage about drunkenness, I understand Dr. McTaggart to be attacking another popular distinction between cause and effect, founded on the plurality of causes in contrast with the supposed singularity of effects.

People who do not, with Dr. Mercier and myself, accept "same effect, same cause," are apt to think it a distinction that though the same cause must have the same effect, yet the same effect may have various alternative causes. Dr. McTaggart, as I read him, is pointing out that this is really a question of how adequately, in any given case, you describe the cause or effect. You may describe a "cause"—i.e. what is roughly named as a cause in a word or two—so loosely as to leave it, for all your description tells us, capable of a great diversity of effects, so that nothing but the effect you assign to it tells us which of its possible effects you are referring to in the given case, i.e. determines what exhibition of the "cause" you are alluding to. Such a determinant by the effect you have in "Drinking causes drunkenness," for obviously drinking can cause hundreds of other things. Diversity of effects is a characteristic of cause as much as [I add, and no more than] plurality of causes is a characteristic of effects. It is not true that effect is singular, and cause plural. "Same cause, same effect" is not a peculiarity distinguishing cause from effect.

I went on, and Dr. Mercier should I think agree with me, to infer that if *both* cause and effect were adequately described the determination would be reciprocal, i.e. each would imply the other exclusively, *both* the causal rules in question being really true.

I believe the logical importance of the idea of implication to be fundamental. But Dr. Mercier appears to me to handle it erroneously in many respects. Explication—the extraction of implication—is for him coextensive with Deduction and Inference, and includes as a case of it, the Syllogism. None of these are capable of proceeding from known to unknown, or of eliciting new truth. Thus, confronted by De Morgan's convincing protest on behalf of mathematics, Dr. Mercier[2] takes the line that mathematics are not deductive. In my judgment it would have been far truer to say that Deduction is fundamentally distinct from Syllogism, and works in the field of mainly non-syllogistic

[1] MIND, No. 95, p. 332. I should naturally leave Dr. McTaggart to defend himself, which no living man is better able to do. But having adopted part of his argument, I must indicate my support of it in my own way.

[2] *New Logic*, p. 328.

explication; that mathematics are deductive but not as a rule syllogistic; and that the difference between subsumption and true deduction or explication by insight forms a cross-division to the current distinction, which Dr. Mercier mistakenly adopts, between Induction and Deduction. His distinction between Material Reasoning and Inference, as founded on experience and on postulation respectively, seems to me altogether untenable.[1] The true line of cleavage, I should contend, is between Linear Inference, which proceeds by subsumption under a premiss merely accepted because somehow given, and Systematic Inference which is grounded on implications apparent to direct insight when the system in which they are elements is developed. The former is seen alike in very crude Induction and in very formal Syllogism; the latter alike in scientific Induction and in scientific Deduction, to which the higher class of syllogism in some degree approximates.

But the opportunity for erecting a genuinely non-syllogistic theory of Logic has been missed by Dr. Mercier as by others, who like him have set up against the syllogism a linear or non-systematic induction fundamentally syllogistic.[2] Dr. Mercier's theory of Implication, not his theory of Material Reasoning, was his promising adventure, but I hold it to have failed for the reasons given.

10. It is tempting to add a word about the argument *a fortiori*. It is surely an argument from the nature of a series, such as Mr. Bradley discussed in *Principles of Logic*,[3] and I, following him, in *Knowledge and Reality*.[4] In order to draw an inference from the apparently serial datum, you must make a construction of it, in other words, obtain an insight into its structure considered as a single system, which involves a more or less precise estimate of the nature of the series and the rationale of its progression. In *Knowledge and Reality* I took what is, I think, pretty much Mr. Pickard Cambridge's [5] position and illustrated rather fully the different degrees of insight, from rule of thumb to full comprehension, with which inference from a serial datum could be conducted. But I think now that I deviated unduly from Mr. Bradley's view, and that the position in question ought to be modified in one respect. It is true, I still think, and here I agree with Mr. Pickard Cambridge, that a clear apprehension

[1] The alleged source of a premiss, in experience or otherwise, throws no light on the nature of an argument from it. Practically all error that has ever prevailed has been vouched for as given in experience.

[2] Mr. Bradley and Mr. Joseph are exceptions. I owe much to Mr. Joseph's distinction between Deduction and the Syllogism, *e.g.*, *Introduction to Logic*[2], p. 310 ff.

[3] P. 226, 237.

[4] P. 316. *Cf.* also Joseph, *Logic*[2], pp. 250, 295. Dr. Mercier would have got much further if he had started from Mr. Bradley's work. As it is, he has said some things like it, but stopped far short of it.

[5] MIND, No. 96, p. 538.

of the nature or law of a series is essential to true reasoning from one though not to its practical application. But I do not think that this is a justification for representing the principle in question as a syllogistic major premiss. The data for a construction are given in the statement of the series, and the requisite insight or comprehension is shown in the construction or development which brings them into a system. There is no work here for a premiss to do which like the syllogistic premiss or that of subsumptive induction is borrowed from elsewhere and accepted for reasons not before us. The general principle, if formulated, is established by the construction of the data and not *vice versâ*. Mr. Bradley (l.c.) is very clear and successful on this point, and Mr. Joseph follows him up effectively. So far as this, I think, Dr. Mercier is right.[1]

But of course there is a universal in the argument. The universal is the nature of the connected system which brings the several relations into dependence in the way of implication. In the *a fortiori* argument the magnitudes ABC form a system connected by the common character of magnitude, and differentiated into its constituent members by their progressive decrements. It is from this synthesis—the system as a single whole—that you can read off what terms are *ad hoc* equivalent and can be substituted for each other in the argument. The "*ad hoc*" or purpose of the argument merely means that the system is of such and such a nature. The subjective purpose of the argument, say, to show that such an engine can pass through such a tunnel, cannot affect the conclusion in the least.

I will add, though the reference is irrelevant, that I think there is some justice in Dr. Mercier's criticism[2] of my argument from two negatives about "No mere animal". But it raises further questions which I cannot go into now.

[1] I am not sure that Mr. Pickard Cambridge intends to maintain that there is a working major premiss in these arguments. See his closing paragraph.

[2] *New Logic*, p. 325

BERNARD BOSANQUET.

UNIVERSALS AND *A FORTIORI* REASONING.

Dr. Mercier will, I hope, not think me unappreciative of the trouble he has taken (N.S. 97) in answering my queries (in N.S. 96) about his view of the nature of the *a fortiori* argument, when I say that he still leaves me unconvinced. I still believe (*a*) that that argument depends on our understanding some universal and necessary nexus of relations; (*b*) that Dr. Mercier's reasons for rejecting this view are invalid; further (*c*) that the explanation he now gives of his own description of the argument accounts for the inference only if it implies such a known universal nexus; (*d*) that in his own illustration this universal is plainly explicit.

(A) Take the old argument 'A is greater than B, and B than C, ∴ A is greater than C'. The terms may stand (as Dr. Mercier says) either for any magnitudes whatever, or for proper names of individuals. In the first case, we see directly and immediately that the premisses necessitate the conclusion: about that we are, I take it, agreed. (As I should put it, there is no need here of appeal to any universal 'outside of' the terms of the argument, because the self-evident universal is here what those terms themselves express.) The question between us concerns the other case, where the terms A, B, C are either names of individuals or of some one definite kind or type of being. Dr. Mercier holds that here too we 'arrive at the conclusion *directly* from the premisses': whether A, B, and C are proper names, or quite general symbols of any magnitudes whatever, 'does not matter a straw'.[1] I believe, on the other hand, that in this case the inference cannot be drawn except we see some general or universal rule that relations of the kind A : B and B : C necessitate relations of the kind to which we conclude between A and C. This universal necessity we see directly; the inference in the particular case we draw only indirectly or mediately, *through* the rule, or because we see the case to be an instance of the rule.

Dr. Mercier asks[2] for grounds, other than the authority of Aristotle, for thinking this. I will try to give some.

(1) Unless there be such a general rule—in other words, if an exception can be found in which relations of the kind instanced in A : B and B : C did not necessitate relations of the kind instanced in A : C—then the argument A : B and B : C, ∴ A : C breaks down altogether. (I am not of course saying that A : C

[1] P. 84. [2] Pp. 85, 91.

need be untrue, but only that it could not be inferred from A : B and B : C.) And the most usual way of upsetting the inference about the individuals A, B, C is in fact to find some other instance where relations of the kind A : B and B : C did not involve A : C; *i.e.*, to upset the general rule, on which that inference turned, that *always* A : B and B : C necessitate A : C.

E.g., I know Peter to be taller than John, and John than Nathaniel.. I can infer, without ever having seen them together, that Peter is taller than Nathaniel; but only because I see that the rule A > B and B > C, ∴ A > C must hold necessarily whatever A, B, and C may be. If you could refute, or find an exception to this rule, I should have to resort to other methods (*e.g.*, direct comparison) to determine whether Peter was taller than Nathaniel or not: it would no longer follow from the premisses.

Again, let A, B, and C be not individuals, but certain definite kinds or types of creature.

E.g., A ferret exterminates rats more quickly than a terrier.
A mongoose ,, ,, ,, ,, ,, ,, ferret.
∴ A mongoose ,, ,, ,, ,, ,, ,, terrier.

But produce a case of any kind of creature—take them from the animal kingdom or the poison cupboard—set them to kill rats or to any task you like, and show me that though A is quicker at its task than B and B than C, yet A is not quicker than C, and I shall have to scrap my inference as to the relative quickness in rat-killing of the moongoose and the ferret. Why? Because as the supposed general rule turns out now not to be general but to have exceptions, I cannot draw the inference in the particular case: I have no guarantee (without further information) that it will not be another such exception.

(2) This bringing of a negative instance is in fact the commonest way of refuting such *a fortiori* arguments when mistaken. The objector says (*e.g.*), 'You cannot argue about the individuals *a*, *b*, *c*, that *a* : *b* and *b* : *c*, ∴ *a* : *c*, because here are other individuals *l*, *m*, and *n*. Now *l* : *m* = *a* : *b*, and *m* : *n* = *b* : *c*, and yet *l* does not stand to *n* as you say *a* stands to *c*. If in the one case the inference does not follow, neither does it in the other.' [It is not so easy to illustrate here from strictly *a fortiori* arguments like the above, where the relations are homogeneous throughout (*i.e.*, all 'greater than . . .', or all 'quicker than . . .'; but where the relations posited are heterogeneous, mistakes as to their implications are commoner. I therefore take one of these as an instance: it illustrates my point just as well; and Dr. Mercier is evidently willing (*v.* p. 85) not to confine the expression '*a fortiori* argument' to the above strict type.] Suppose (*e.g.*) one man to argue: 'Peter's house is N. of John's, and John's is E. of Nathaniel's: I know nothing of their whereabouts beyond this, but this alone tells me for certain that Peter's house is N.E. of Nathaniel's'. His friend can floor the argument so expressed by replying: 'That won't work, be-

cause Capt. Peary's flagstaff (at the N. Pole) is N. of mine, and mine is E. of Jones'; and yet Peary's is not N.E. of Jones', but N.'. And the first man's argument will have collapsed unless he explains (as he will probably hasten to do) that of course he assumed Peter to live elsewhere than at the N. Pole; in which case his argument will stand.

Now on the view I defend it is perfectly plain why the friend's objection floored the original argument, and why the added explanation saved that argument as amended. What the objection upsets directly—its contradictory—is the supposed universal rule that of *any* three points on the earth's surface (A, B, C) you can validly argue that if A is north of B, and B east of C, ∴ A is north-east of C; and I can understand how the upsetting of this supposed general rule, by showing that it doesn't work if A is the North Pole, involves the downfall of the inference about the relative positions of the three houses, *if, and only if*, this inference depends upon that general rule. On any other assumption, I cannot see how or why the objection which bowls over the rule should also at once bowl over the particular inference. If (as Dr. Mercier seems to hold) the inference about the houses rests on an insight only into the actual relative positions of those three individual houses, and not at all on an understanding of the *kind* of relations involved, or on any belief that a northward relation of A to B, + an eastward relation of B to C must *universally* involve a north-eastward relation of A to C, then I cannot see how the collapse of this last belief in the supposed general rule carries with it (as it certainly would) the collapse of the inference about the houses. The original conclusion about the houses, if reached directly and immediately, standing wholly (so to say) on its own legs, would continue so to stand, quite unperturbed by any debacle of general rules, or by any argument about the similarly related positions of three given flagstaffs—which argument (like the first) would be immediate, direct, and self-contained. As has been urged scores of times against a well-known passage in Mill, there is no argument from one individual to another except they be instances of a common type, about which something is known universally.

The argument as amended and qualified (by excluding the N. Pole) is clearly untouched by the objection about the flagstaffs which upset its original form. Why is this difference? On my view, the explanation is simple, *viz.*, that the general rule as unqualified was shown to be untrue, whereas as qualified it is true, and the objection is no longer relevant to it. (I assume here that the argument 'A is north of B, and B is east of C, ∴ A is north-east of C,' is true always *except* when A is the N. Pole). On Dr. Mercier's view, how comes this difference? As far as I can see, on his principle there should be no such difference: both forms of the argument, if each rests on an insight wholly direct and immediate, would be alike unaffected.

In fact I would press this point further. How in his view

could we correct or refute arguments of the kind at all? Could we ever get beyond the deadlock in which one man says, 'I see such and such a conclusion emerging from these particular premisses,' and the other says, 'Well, I don't'? The usual way, in fact, to get out of that deadlock is (as here) to try to show that one side or the other is making some unwarranted universal assumption. On Dr. Mercier's view, as no universal consideration enters into the reasoning at all, this very common resource would of course be an absurd irrelevance. But what other means have we of arguing the validity of such inferences? Or are they unarguable?

Before leaving this illustration, I would add this:—Although the argument is about the individual sites of three individual houses, are not the considerations on which it turns transparently universal? The conclusion cannot possibly be reached by inspection of the actual positions of the three houses, because those actual positions are avowedly unknown to the speaker. They are known *only* as instancing two kinds or types of relation (a northward and an eastward), and the whole argument turns on the intuition that a certain other relation (a north-eastward) is necessarily and universally involved whenever those relations are combined. Are not the very terms in which those cardinal relations are expressed (N., E., N.E.) utterly universal?

Just so, in the inference about the relative heights of Peter and Nathaniel, direct observation of the three individuals together was excluded, and rightly so, if the conclusion is to be kept (as for our purpose of studying a certain kind of inference it needs to be kept) a matter of pure inference and nothing more. And if in any like argument about individuals we strip off superfluities and confine ourselves to essentials, we shall (I think) always find that the irreducible requirement is a direct intuition that in two relations of a certain type or types a third relation of certain type is universally involved, and that the individuals in hand afford an instance of the first two types of relation. If the universal breaks, then (as I have tried to show) the whole inference breaks: on the other hand, if the universal holds, then for our inference we need know no more about the individuals except that they afford an instance of it: any other information we have about them is irrelevant to our argument.

(3) I may offer one or two more illustrations of the point that unsoundness in arguments of this kind may usually be traced to some unsound underlying universal assumption: the universal not seldom avenges itself on those who fail to recognise its presence and pay it proper attention. I will take my examples, in defence of Dr. Mercier's plea (pp. 84-85), from arguments in which the advance of the argument *a fortiori* is less clearly cut into steps than in those of the hackneyed type '$A > B$ and $B > C$, $\therefore$ $A > C$'.

I may begin with Dr. Mercier's own example (p. 85): 'If I answer an antagonist who is confused and discourteous, then *a*

fortiori I shall answer one who is clear and courteous'. As it stands thus unqualified, this argument is obviously unsound: whether you will be more ready to answer an antagonist of the second than one of the first type depends entirely on the question to what type of controversialist you yourself belong. If you are a peaceable seeker after the truth, no doubt the argument holds: but if, on the other hand, you are a merely contentious person, a delighter in opportunities for hard words and cheap quips (and to our sorrow we all know this type of controversialist as well as the other), then as surely you will prefer to spar with the first type of opponent rather than with the second. Once again, the inference turns on your insight into the individuals A, B, and C, not as such, but only as instances of certain *types* of person, and into the inevitable or universal tendency of these types to react towards each other in certain ways, and not in others. Otherwise, unless you know to what type A belongs, and how inevitably that type of man behaves respectively to confused and discourteous, and to clear and courteous antagonists, you have no means of inferring rightly how A will behave: and if you try, and infer wrongly, even your mistake will turn out to be an argument through a type:—it will depend on a mistake as to the *sort* of man A is.

I take one more example, from Mr. Joseph's *Introduction to Logic* (p. 342), *viz.*, the familiar Johannine argument, 'If a man love not his brother whom he hath seen, how shall he love God whom he hath not seen?' (*i.e.*, much less will he do so). Here again the argument as stated is quite precarious and unsound: its truth or falsity depends entirely on the kind of man the brother is. If he is a person whose visible presence recommends him to the love of every one, all is well with the argument; but not else. We have all perhaps 'seen' (though fortunately not as our brothers) persons of a type such that we could bestow more love not merely on God, but on any unseen being—even on the devil himself, who (according to the proverb) is at least a gentleman—than on such creatures: and if the 'brother' whom we have 'seen' be of this type, the argument clearly fails. And here again the same conclusion follows: the whole reasoning, right or wrong, hinges on the conception or misconception of certain general types and of their universal relations.

(B) Having tried to state some reasons for holding the view that an insight into universals is essential to reasonings of the kind in question, and having succeeded, if not in convincing Dr. Mercier, at any rate (I hope) in sparing him the irritation of any reference to Aristotle, I pass to consider his criticisms on that view (p. 86).

(*a*) The position of the defenders of the universal he states as follows: In the argument $A > B$, and $B > C$, $\therefore A > C$, it is obvious (he says) without a 'shadow of doubt' that the conclusion differs in nothing but 'the substitution of C for B in the first premiss

or of A for B in the second';[1] and this substitution is according to the 'old Logic' 'effected by means of an analogy': we see the necessity of it when the relations are stated universally, and then 'the relations being the same, we argue by analogy that if it is true in the universal it must be true in the particular also'. To this Dr. Mercier replies with a denial that the argument is an analogy.

In thus stating the position he is combating, Dr. Mercier is confessedly 'putting it' in his 'own way and not as it is taught in the books'. I venture to think this somewhat unfortunate. I cannot pretend to anything like the acquaintance with 'the books' which Dr. Mercier probably has, and therefore I do not know whether any reputable defender of the 'old Logic' would accept as a fair expression of his own view the doctrine that we pass from understanding a universal to a judgment about its instances by 'analogy'. But so far as I know 'the books' (and certainly so far as concerns my own humble attempt to defend the function of universals in reasoning), Dr. Mercier has (no doubt unintentionally) queered the pitch by that way of 'putting it'. His denial hits only a position that is not defended. I can therefore only try to meet his criticisms so far as they are unaffected by that particular expression, and are directed generally against the presence or necessity or influence of a universal element in such inferences about individuals at all.

(*b*) 'I deny that we have the universal in our minds.' Then I must ask once more, how is it that (as I have tried to show by the above examples) you can shake the inference about the individual by shaking the credit of some universal assumption, and destroy it by destroying that credit?

(*c*) 'For ages logicians have been trying to discover and formulate this universal, and no logician has succeeded to the satisfaction of any other logician.' Then how is it that Dr. Mercier can associate 'the latest effort, the J.-S.-S. formula' with the initials of three several writers? At least these three, surely, must agree in one! And we may at any rate suspect that agreement among the defenders of the 'old Logic' is a good deal wider than this.

(*d*) 'The latest effort, the J.-S.-S. formula . . . means exactly the same as the *a fortiori* which it is put forward to validate.' Now Mr. Shelton's formulæ[2] are (I take it) indisputably universal, while the *a fortiori* arguments which they seek to validate are arguments about individuals. How then does the statement that each 'means exactly the same' square with Dr. Mercier's own later assertion that 'an individual and a universal are as antithetic as any antithesis can be' (p. 90), or that 'the universal is not anterior but posterior to the argument' (about the individual)?[3] I do not see how a given argument can be 'posterior' to an argument which 'means exactly the same'; nor do I see how the last phrase can properly be applied to arguments about terms 'as antithetic as any antithesis can be'.

[1] P. 85. [2] N.S., 97, pp. 77-79. [3] P. 86.

(*e*) 'I deny that it is any easier to recognise the validity of the *a fortiori* when stated generally than when stated particularly'[1] (*i.e.*, than when its terms are taken as proper names). Since the scholastic days we have apparently learnt the possibility and existence 'of argument about individuals alone'.[2] Then, once more—take your individuals thus strictly as 'individuals alone'; banish utterly from your mind every trace of a universal, every thought of the types or kinds of being which are instanced in those individuals, or of the relations in which such beings necessarily and universally stand to one another, and see how far or how certainly you will be able to proceed with your inference. Until the contrary is shown, I shall continue to think Kant not far wrong in his view that such 'perception without conception' is likely to remain 'blind'.

(*f*) Dr. Mercier holds it unreasonable 'to contend that we reach our conclusion through a universal that we never formulate until after the conclusion is reached, that we cannot formulate without difficulty, and that, when formulated, is only fit to be laughed at'.[3] I pass by the last clause, as it clearly begs the whole question: but I must demur to the inference that no understanding of a universal guides our conclusion merely because we do not formulate that understanding until we have used it. Cannot the processes of our minds operate implicitly before they are made explicit? If all the world must *already* grasp consciously and be able to formulate accurately all the principles of its thought, what is the function of the logician? Surely all Logics (including even the *New Logic*) are superfluous, and merely declare at great length what no one questions! And I venture to think that the contention that a principle which is in this sense 'unconscious' is an imposture or a sham ('one of the garments that make up the Emperor's clothes,' p. 87) would be as fatal to Dr. Mercier's own formulation of the principle of *a fortiori* reasoning as ever it would be (say) to Mr. Shelton's. The above argument (*e.g.*) about the respective heights of Peter and Nathaniel is well within the compass of the ordinary street-arab; but if you asked him 'How do you know that?' I should be a good deal surprised if he answered, 'Because I see that for the purpose of this argument, to which the relation in the premisses is well adapted, the term Nathaniel may be legitimately substituted for the term John'. I did once, as a matter of fact, put the question, as an experiment, to a London cab-driver who had delivered himself of an argument of the kind concerning the amount of his fare, and I can assure Dr. Mercier that the reply vouchsafed didn't in the least resemble his formula. Either therefore that formula cannot give the principle of such arguments correctly, or it must be possible for the mind to use in reasoning principles which it cannot properly express.

(*g*) 'It is curious that logicians should still insist upon the

[1] P. 86. [2] P. 90. [3] P. 87

necessity of a universal in face of the admission into logic of arguments about individuals. In Scholastic days, when Logic was comparatively logical, the individual was shut out of logic,'[1] the suggestion being, I suppose, that all defenders of the universal in reasoning ought, in order to be logical, to follow suit and refuse to argue about individuals at all. Now, whatever may have been the view of the Scholastics in question (a purely historical question which does not here concern me), I fail to see why it should be thought 'comparatively' (if that means 'more') logical in the defenders of the universal to hold such a view. How does it follow, from the thesis that you can argue about individuals through universals, that therefore you cannot argue about individuals at all (for that I suppose is meant by the phrase that the individual is 'shut out of logic')? The one proposition appears to me to be contradictory of the other, not its corollary.

(C) I pass to a brief word on Dr. Mercier's alternative account of the argument. I am sorry for my previous misinterpretation here to which he calls attention. He now explains (p. 88) that the question whether the argument is valid or invalid (*i.e.*, whether the 'substitution of terms' in it is justified or not) 'depends *inter alia* upon the adaptation of the relation in the premisses to the purpose of the argument'. In 'A cheats B and B cheats C,' the relation is well adapted to the purpose of finding a similarity between A and B, or between B and C: we may therefore legitimately conclude that A and B are both cheats, or that B and C are both cheated. On the other hand they are not adapted to the purpose of establishing a relation between A and C: we cannot therefore conclude that A cheats C (p. 89).

Now the question that here suggests itself is, what is the exact nature of the 'adaptation' here meant? What is it that we find in the first two cases and miss in the last? I have tried to state it in various ways, but confess that I can find no adequate meaning in the terms 'adaptation,' 'want of adaptation' except the presence or absence of some connexion between the kinds of relation expressed in the premisses, and that elicited from them in the conclusion—a connexion necessary and (*pace* Dr. Mercier) universal. The relations are 'adapted' to the purpose of finding a certain relation between the terms of the conclusion, if a relation of that kind is necessarily and always implied in the kinds of relation posited in the premisses: otherwise, they are 'unadapted'. The above premisses (*e.g.*) are adapted to the conclusion that A and B are both cheats (or cheated) because *always* if of two people each is a cheat (or cheated), then both are cheats (or cheated): they are not adapted to the conclusion that A cheats C, because in *no* case does it follow that if one man cheats another and that other a third, therefore the first cheats the third. If the crucial factor be not thus any universal nexus, but some other that I have overlooked, will Dr. Mercier explain what it is?

[1] P. 90.

(D) I am emboldened to hope that I am right by Dr. Mercier's own example (p. 89) of premisses that would be 'adapted' to the proof of a 'relation of cheating between A and C'. They are

'A obtains money by false pretences from C'

and 'Obtaining money by false pretences is cheating'.

The hinge of the argument here, the guarantee of its validity, is the second premiss which declares 'the equivalence of the two ratios'.

I do not know whether it is a matter for congratulation or not when the argument one is examining commits suicide; but that, (it seems to me) is what Dr. Mercier's argument has done here. At least he makes me a present of all I contend for. For if a proposition declaring the 'equivalence of two ratios,' such as this—'Obtaining money by false pretences is cheating'—be not a universal proposition, then I do not know what is. After this, Dr. Mercier's question, 'Where is the necessity for a universal?' seems to answer itself. For here is a universal, not 'outside of' the argument, but 'in it,' in the very centre of it.

The length to which this reply has run, and the fact that it was drafted long before they appeared, must be my excuse to Dr. Schiller for replying less fully to his criticisms in MIND, N.S., 100.

I may summarise them under three heads:—

(1) That the forms of *a fortiori* argument which I have called 'valid' may sometimes yield invalid conclusions.

(2) That the forms which I have called 'invalid' may sometimes yield valid conclusions.

(3) That I misrepresented Dr. Mercier's position in supposing him to maintain that the difference between valid and invalid arguments turns *only* upon a difference in the purpose of the argument.

On the last point I gladly accept correction. Dr. Mercier had already noted the misunderstanding and suggested a new relevant factor that I had overlooked—I do not think he had put it so explicitly before—*viz.*, the 'adaptation of the relation in the premisses to the purpose of the argument'. With this, so far as I understand it, I have already dealt above.

Dr. Schiller's first two points raise a fresh issue: they amount frankly to an invitation to reject the idea of formal validity or invalidity altogether. I am afraid his reasons do not convince me, although I think we are agreed in not wishing to exclude consideration of 'material' differences.

(*a*) I quite admit that the argument (which I should give as an instance of an *invalid* form of reasoning) 'A is next to B and B is next to C, ∴ A is next but one to C,' is valid enough *if* you suppose that *A, B, and C lie in the same straight line* (or, as Dr. Schiller puts it, 'a laterally linear relation,' 'determination in the line of sight'): it is equally invalid *if* you suppose them ***arranged triangularly***, because, as he says, A then is next to C,

not next but one. But I cannot accept the conclusion that we have here one and the same 'form' of argument yielding sometimes a valid, sometimes an invalid conclusion. The additions or qualifications I have italicised alter the form of the argument. We have not one 'form' but three. The first modification gives a form of argument universally valid, the second gives one universally invalid. The original 'form' of statement, *as it stands*, is 'invalid,' and by reason of the facts which Dr. Schiller notes (1) that the expression 'next' is 'ambiguous,' and (2) that of the two relations it may represent, the conclusion is as certainly false of the one, as it is true of the other. It is invalid because it thus assumes, without qualification, of *all* kinds of 'next-ness,' an implication which is true only of *some* of them: and this is a definite kind of 'invalidity'. It is not that (as would the second modification given above) it assumes an A proposition where E is true; but it does assume an A proposition where O is true, and where therefore only an I can properly be asserted. It is as definitely false as the statement that 'All men can write beautiful symphonies'.

(*b*) I still believe that other 'forms' of the argument are *valid* universally, *viz.*, any that is valid and presents no ambiguity in regard to the 'material' factors (terms and relations) involved, and any that is equally valid in each of its alternative senses. And I still defend the argument 'A > B,' etc., as an instance of such a universally 'valid form'. It is doubtless ambiguous: one might conceivably interpret 'greater' as referring either to spatial magnitudes, or to extension in time (= 'longer') or to volume of tone (= 'louder'); and, of course, there is a wide range of choice in the terms represented by A, B, and C. Nevertheless, I claim this as a 'valid form' because the ambiguity here does not (as in the case of 'A is *next* to B,' etc.) in the least affect its validity. It is valid (at least so far as I can see) of each and all of the various material relations of which it is the natural expression; and therefore it is valid absolutely.

Dr. Schiller denies this. Why? Because, even if the validity is unaffected here by 'material' differences or ambiguities, it may still be affected by differences in the 'purpose of the argument'. How this might happen to the particular form of argument in question (A > B,' etc.), he proceeds to illustrate as follows (p. 514): 'If A were only microscopically larger than B and B than C, and if these differences were negligible, it would not actually be true that A was *greater* than C. For the purpose in hand it would be truer to say that A was *equal* to C.' I quote here verbatim because I feel myself in the presence of some Pragmatist mystery of which it would be sacrilege to attempt a paraphrase. The only way in which I (as an uninitiate) can construe the words seems to me to yield simple nonsense—a contradiction in terms. A 'microscopic difference' means (to me at any rate), a difference such that you can detect it with a microscope: for that, the difference must be actual; and, if so, it

passes my understanding to know how 'it would not actually be true' to assert its existence. If A is even microscopically greater than B, I cannot see how 'for the purpose in hand,' or for any other purpose, it is appropriate to call the proposition that it is equal to B a 'truer' one. I should have thought the proper way to characterise such an assertion would be that it is a falsehood whose falsity, however, for the purpose in hand does not matter. Otherwise, where shall we next be carried? For the purpose of placing a contract of several thousand pounds a difference of half a crown between two estimates may be 'negligible': but is it therefore the fact that £8000 (say) is *equal* to £8000 2s. 6d.? Is it not 'actually' less? Or is it 'truer' to say what is not the fact than to say what is? Again, if to a rich man it is a 'negligible' consideration whether his dinner costs him 5s. or £5, are these sums therefore 'equal'? Or, being unequal, is it 'actually not true' to call them so? Mathematicians tell us that a new geometry has invaded our schools in the last twenty years: is this the new Arithmetic? Or is the sentence I have quoted (like the illustration of *πλέον ἥμισυ παντός* in the next sentence) a joke, only less broad and therefore more seductive? Can it be an *ignis fatuus* whereby Dr. Schiller lures forward the unhappy searcher after his meaning *εἰς βυθὸν φλυαρίας*, while he himself quietly enjoys his victim's flounderings from some concealed, secure retreat? I do not profess to know: but, if this be so, then *ἐν φάει καὶ ὄλεσσον*: in pity, let him spare us this!

One word in conclusion: I have done my best to understand, and to answer so far as I understand, both Dr. Schiller's and Dr. Mercier's criticisms. I hope I have not anywhere seriously misrepresented them: if so, it is for lack of the power, not of the will, to comprehend. But when I find an argument that turns on the premiss 'Obtaining money by false pretences is cheating' followed by the question 'Where is the need for a universal?' or when I find the statements, first, that A is microscopically larger than B, and next that it 'would not actually be true' that it is greater, but would be 'truer' to call it equal to B, then I confess to a misgiving as to whether there exists between us that common basis of an agreed use of words without which any discussion of a special problem like that of *a fortiori* reasoning must tend to drop into profitless logomachy. Are we using terms like 'universal,' 'actual,' 'true,' etc., in the same sense at all? If not, I fear that our essays on special problems like the present, even though we deal with the same words, will inevitably exhibit that character of parallel lines to which Dr. Schiller has referred, that however far they be produced they never meet.

W. A. Pickard-Cambridge.

DE PROPOSITIONUM AUT IUDICIORUM PROBLEMATE.[1]

Post Theaetetum Platonicum sapientes sane admoverunt acumina expediendo quid vox veri, quid vox scientiae significarint. Necdum faciunt finem certandi. Nonne permirum est tantam vim animi per tot gentes, per tot annos frustra, ut videatur, esse consumptam? Forsitan rectius faciat, qui quaerat qua ratione et quo fiat ut propositiones vel iudicia (quemadmodum dialectici dicunt) possint praebere problema. Excidant interea ex animo nomina veri et falsi.

Nam, exempli causa, si quidem protulerim propositionem, utpote "tonat," nec quisquam unus dixerit contra "num tonat?" aut "non tonat," inde mea propositio non possit praebere problema nisi quod sit psychologiae philologiaeve vel litterarum humaniorum. Si tamen quis disputaverit aut contradixerit, forsitan mihi occurrat utrum mihi omnia, quae in causa expromantur, cogitanti in mentem redeat propositio omnibus aliis propositionibus exclusis. Atque eodem modo, si nullo redarguente vel dubitante propositiones semper protulissemus, crediderim sane nos neque veras et falsas discrevisse neque habuisse problema putandi. Quis enim falsam esse dicit propositionem, quam neque dubitat neque redarguit? Quid dicere possit?

Praeterea, si mea propositio mihi omnia, quae in causa exponantur, cogitanti in mentem redierit omnibus aliis propositionibus exclusis, quid sequitur? Cum nobis ipsis aliisve posthac rursus dubitare vel redarguere liceat, nonne subit animum illa quasi cogitatio vel notio aut propositionis aut propositionum corporis mente iterati omnibus aliis exclusis post investigationes ab omnibus, qui plene considerant quaestiones, quibus responsorum loco in medium proferuntur?

Iam, ut redeam ad scientiam et errorem, ad verum et falsum, quid aliud quam tales propositiones aut tale propositionum corpus nos adepturos sperare possumus? Quid? Quem aliam in animo informabimus tamquam speciem veritatis et scientiae, si quidem his vocabulis utimur?[2] Id demum quaerere superest. Nos autem deliberemus nihilo de verbis sed tantum de problemate putandi.

Harold P. Cooke.

[1] This note has been written in Latin owing to the comparative freedom of that language from confusing and alien associations with modern disputes on "the Nature of Truth".

[2] Itaque nobis hoc modo loquentibus nulla veritas erit sine investigatione.

VII.—CRITICAL NOTICES.

Essays in Experimental Logic. By JOHN DEWEY. The University of Chicago Press, 1916. Pp. vi, 444.

As the Preface explains, this volume contains a collection of some of Prof. Dewey's previous articles, with a new Introduction (of 74 pages) which helps to show their interconnexion and to guard against some misinterpretations of their doctrine. Chapters ii.-v. represent (with revisions and some omissions) essays taken from *Studies in Logical Theory*, first published in 1903. The other essays are in part reprinted and in part rewritten from contributions to philosophical periodicals at various dates between 1900 and 1915.

The general purpose of the book may be said to be to help us to understand more fully the great change which pragmatism—or 'instrumentalism,' as Prof. Dewey often prefers to call it—is trying to introduce into philosophy. And its prevailing feature, taken as a whole, is its determination to keep in view the complex and difficult facts of the thinking process as it actually occurs, rather than to adopt the short-cuts and evasions by which so much of our previous logic has been deprived of its possible value. But instead of using Formal Logic as a foil against which the new doctrine may stand out, the author takes on the one hand Lotze's idealism, on the other Mr. Bertrand Russell's realism, and shows the points at which instrumentalism departs from both of these. Even with the help of some well-chosen examples the real difficulty of the subject is considerable.

Among the points on which most stress is laid we may note the following:—

(1) Knowledge, or reflective thought, always originates in a particular felt difficulty in experience, and therefore holds an intermediate position in time between the non-reflectional experience which precedes it and the satisfaction which comes with the removal of the difficulty. Thus it always has a specific task which is set by a concrete situation, and it can only perform that task by reference to the conditions of the situation in which the difficulty arises. The idealistic logic, through ignoring all this, overlooked the essential feature of knowledge: control of the environment in the interests of human progress and well-being; and in consequence "set up as its criterion an Absolute and non-temporal Reality at large, instead of using the criterion of specific temporal

achievement of consequences through a control supplied by reflection" (p. 22). Idealism regards thought as constitutive rather than instrumental, while the new analytic realism regards it as instrumental not to a control of the environment but to a knowledge of objects.

(2) When all reflective thought is thus seen as an attempt to answer a particular question or to harmonise a particular discord that arises in experience, we see also that its method must consist first in becoming aware of the relevant facts of the situation, and, secondly, in inventing ways of dealing with them, the value of which can only be discovered by experiment. In this sense and to this extent all knowledge is experimental. Here "the decisive consideration as between instrumentalism and analytic realism is whether the operation of experimentation is or is not necessary to knowledge. The instrumental theory holds that it is; analytic realism holds that even though it were essential in *getting* knowledge (or in learning) it has nothing to do with knowledge itself, and hence nothing to do with the known object: that it makes a change only in the knower, not in what is to be known" (p. 32). Instrumentalism, while fully admitting the existence of brute facts, not constituted by thought, dwells upon the importance of analysing them mentally. It is as signs that facts are wanted, and in their unanalysed condition their meaning is ambiguous. "In their complexity they point equally in all directions; in their unity they run in a groove and point to whatever is most customary. To break up the complexity, to resolve it into a number of independent variables, each as irreducible as it is possible to make it, is the only way of getting secure pointers as to what is indicated by the occurrence of the situation in question. The 'objects' of ordinary life, stones, plants, cats, rocks, moon, etc., are neither the data of science nor the objects at which science arrives" (p. 37).

(3) When we view reflexion as an actual occurrence in time, the elements that belong to it gain their character as data by reference to the particular enquiry: "the results of abstraction and analysis are perfectly real, but they are real like everything else *where* they are real: that is to say, in some *particular co*-existence in the situation where they originate and operate" (p. 38). It is through recognising that data are things by which we know, rather than things known, that we guard ourselves against the supposition—made by analytic realism—that Reality is a whole constructed of parts that are fixed and mutually independent.

(4) The relation between data and meanings is conceived by Prof. Dewey with a richness unusual even among pragmatist logicians. It is in chapters iv. and viii., on 'data and meanings,' and on 'the control of ideas by facts,' that we get the completest account of the actual operation of doubt in the process of discovery, and at the same time see the importance of limiting 'truth' to the solving of particular problems. He notes first the

way in which, in a doubtful situation, we inevitably discriminate a part which is relatively secure and unquestioned from a part which is less so, thus dividing the field into 'facts' or data, and ideas or meanings; and he shows how the same process of discriminating the less from the more doubtful proceeds throughout an enquiry. Facts, no less than ideas, must be taken as tentative and experimental when a perplexing situation has to be dealt with. It is never the given, in its totality, that we should take as fact, but only so much of the given as may be relevant to the particular difficulty that is felt; and this involves the risk of our making a wrong selection. The risk remains, in any case, but we give ourselves the best chance of succeeding when we are aware of its nature. "The more stubbornly one maintains the *full* reality of either his facts or his ideas, just as they stand, the more accidental is the discovery of relevantly significant facts and of valid ideas—the more accidental, the less rational, is the issue of the knowledge situation. Due progress is reasonably probable in just the degree in which the meaning, categorical in its existing imperativeness, and the fact, equally categorical in its brute coerciveness, are assigned only a provisional and tentative nature with reference to control of the situation. That this surrender of a rigid and final character for the context of knowledge on the sides of both fact and meaning, in favour of experimental and functioning estimations, is precisely the change which has marked the development of modern from medieval and Greek science, seems undoubted. To learn the lesson one has only to contrast the rigidity of phenomena and conceptions in Greek thought (Platonic ideas, Aristotelian forms) with the modern experimental selection and determining of facts and experimental employment of hypotheses. The former have ceased to be ultimate realities of a nondescript sort, and have become provisional data; the latter have ceased to be eternal meanings, and have become working theories. . . . Science has advanced in its methods in just the degree in which it has ceased to assume that prior realities and prior meanings retain fixedly and finally, when entering into reflective situations, the characters they had prior to this entrance, and in which it has realised that their very presence within the knowledge situation signifies that they have to be redefined and revalued from the standpoint of the new situation" (pp. 243, 244).

It will be seen from the above extracts that Prof. Dewey boldly attacks the chief difficulty of the subject, which consists in recognising fully that there are two opposite fundamental needs in the development of knowledge: our 'facts' and 'ideas' must have sufficient substance or firmness, and they must also have sufficient elasticity or lack of firmness. In the actual work of science, where no attempt is made to theorise about its methods, the skill required for holding an even balance between these opposite needs is—like the skill of the artist generally—a personal gift which comes with comparative ease to some of those engaged

in the work, and which develops with practice; but it is a more difficult matter to lay down general rules of discovery so that they shall be safe against misunderstanding. In framing logical theory we are almost inevitably led to emphasise one of the needs to the disadvantage of the other.

Historically the part played by useful doubt, as contrasted with either naïve or artificial certainty on the one hand and undiscriminating scepticism on the other, has been of slow growth. In an interesting chapter entitled 'Some Stages of Logical Thought' Prof. Dewey distinguishes roughly various halting places on the way. At an early stage doubt is regarded not as a welcome guest but as an intruder, to be got rid of as speedily as possible. 'Ideas,' or meanings, are accepted as beyond the reach of criticism, in much the same way as social rules are accepted among primitive peoples, and the only doubt is as to what idea should be applied to a particular case. But gradually the need for revising the ideas themselves is recognised, until at last we reach the scientific attitude of mind which encourages a continual extension of the questioning process. "As the scientific spirit develops, we see that it is we who lend fixity to the ideas, and that this loan is for a purpose to which the meaning of the ideas is accommodated. Fixity ceases to be a matter of intrinsic structure of ideas, and becomes an affair of security in using them. Hence the important thing is the *way* in which we fix the idea—the manner of the enquiry which results in definition. We *take* the idea as if it were fixed, in order to secure the necessary stability of action. The crisis past, the idea drops its borrowed investiture, and reappears as surmise" (p. 192). And as ideas multiply, simplification and systematisation are more and more required, and many of the old ideas have to be radically modified.

The account given (pp. 209-216) of the characteristics of experimental science in its present condition emphasises very well the function of doubt in furthering the progress of knowledge. 'Facts' have become primarily invitations to detailed enquiry, and the hope of discovery has superseded the old contentment with 'proof'. Inference is no longer a closed process terminating in a conclusion, but rather the opening of a road into the unknown. "Its technique is not a scheme for assigning status to beliefs already possessed, but is a method for making friends with facts and ideas hitherto alien" (p. 210). Uncertainty, instead of being regarded as a general disease calling for a remedy, is now nothing worse than the raising of interesting special points calling for fresh enquiry; the question always is how this or that fact can here and now best be understood in view of a present purpose. Instruments of research have become actual organs of thinking, and our "interest is in the discrepant because that stimulates enquiry, not in the fixed universal which would terminate it once for all" (p. 212). The science of to-day lives only so far as it supersedes that of yesterday, and so ex-

tends its application to human purposes; its so-called practical uses "are only the further and freer play of the intrinsic movement of discovery itself" (p. 216).

In the three concluding chapters of the book Prof. Dewey discusses some questions about Pragmatism and the meaning it gives to the word 'practice'. While expressing the greatest admiration in general for William James's account of the matter he has some useful criticisms to make on it. For instance, he thinks that confusion and misunderstanding have been caused by James's attempt to combine the different points of view which are taken in regarding pragmatically a number of different things —such as controversies, beliefs, truths, ideas, and objects—and that a better plan is to distinguish the special meaning of 'practical' which belongs to each. Still more important are his remarks upon what has always been a great obstacle to the acceptance of pragmatism—the encouragement it is wrongly supposed to give to personal preference, as such, in determining 'truth'. There are several passages in James's writings which are partly responsible for this supposition; such as his unfortunate remark about "good consequences," or, again, his phrase, "The Will to believe".[1] Prof. Dewey shows that it is quite possible to recognise fully the influence of the personal factor in belief without in the least overlooking the need of objective control. In view of the prevalent misconceptions of the nature of pragmatism the distinction between a test of meaning and a test of truth should be emphasised rather than obscured. The question as to a test of truth only arises after a meaning is already given to the question in dispute.

In conclusion, I would say that the special qualities of the book are such as to make any compressed account of its doctrines liable to be inadequate even with the help of quotations. Prof. Dewey's view is many-sided, and his tone is uncontroversial. Where he disagrees with other systems of thought he seems anxious to do all possible justice to them and to understand their point of view. Even where obstinate prejudice calls for a rebuke he gives it in the quietest form—as when he says of some of his opponents that their attitude reminds him of the story of the rustic who, after gazing at the giraffe, remarked "there ain't no such animal". He sees also that mistaken notions in philosophy are often only survivals from a time when they were of real service. For example, he admits that the view that knowledge consists in an otiose contemplation of the world served a purpose when knowledge that had an obvious practical import was liable to persecution; it protected the growth of enquiry, and perhaps allowed of a more varied curiosity, greater impartiality,

[1] Prof. Dewey points out (p. 327) that even when this is corrected into "The Right to believe" there is a risk of its being taken to indicate a *privilege*, in certain cases (*e.g.* religion) to be exercised as against open and fearless enquiry.

and a more generous outlook than would have been possible to men living in the thick of an intolerant and troublous world. But in our own times "an intellectual integrity, an impartiality and detachment which is maintained only in seclusion is unpleasantly reminiscent of other identifications of virtue with the innocence of ignorance. To place knowledge where it arises and operates in experience is to know that, as it arose because of the troubles of man, it is confirmed in reconstructing the conditions which occasioned those troubles. Genuine intellectual integrity is found in experimental knowing. Until this lesson is fully learned it is not safe to dissociate knowledge from experiment nor experiment from experience" (p. 73).

ALFRED SIDGWICK.

Egotism in German Philosophy. By G. SANTAYANA. London and Toronto: J. M. Dent & Sons. New York: Scribners. Pp. 171.

LIKE everything Prof. Santayana writes this book is excellent reading, as no one will acknowledge more readily than serious-minded critics who will regard him as a mighty magician whose art can charm into acquiescence the most vehement dissent, while even those who realise that butterflies must not be broken on the wheel, nor flowers of rhetoric crushed with Thor's hammer, and who therefore eye Prof. Santayana's epigrams more leniently, will find it hard not to be dazzled by their glitter. But really the critics have no ground for complaint. Prof. Santayana is quite honest with his readers. He does not profess to catalogue the contents of German philosophy or to confute its dogmas. "The function of history or of criticism is not passively to reproduce its subject-matter" and "one stout corpus of German philosophy is enough in the world". What he has tried to do is to give "the aroma of German philosophy that has reached my nostrils" (p. 6), and to tell us why this aroma does not suggest to him the odour of sanctity. Prof. Santayana had suspected German philosophy for twenty years, even while he lectured on it at Harvard. From the first "under its obscure and fluctuating tenets I felt something sinister at work, something at once hollow and aggressive.[1] It seemed a forced method of speculation, producing more confusion than it found, and calculated chiefly to enable practical materialists to call themselves idealists and rationalists to remain theologians. At the same time the fear that its secret might be eluding me, seeing that by blood and tradition I was perhaps handicapped in the matter, spurred me to great and prolonged efforts to understand what confronted me so bewilderingly. I wished to be as

[1] One is reminded of the taste of the 'Snark,' which according to Lewis Carroll was 'meagre and hollow, but crisp'.

clear and just about it as I could—more clear and just, indeed, than ever it was about itself" (p. 5).

Plainly, therefore, this is not meant as a war-book, not, that is, as an attempt to carry the political passions of the day into the supernational realms of science, art, religion, and philosophy where the spiritual achievements of mankind have their abiding habitations. If it were, it would presumably be like the other war-books, ἀν ἀγώνισμα ἐς τὸ παραχρῆμα, and, perhaps, a disgrace for ever. But though the war did not beget the book, it has equipped it with many of its most effective gibes, like the description of Goethe's *affaires de cœur*—"every pathetic sweetheart in turn was a sort of Belgium to him; he violated her neutrality with a sigh; his heart bled for her innocent sufferings, and he never said afterwards in self-defence, like the German Chancellor, that she was no better than she should be" (p. 50).

But the war has made possible the appearance of the book. For what professor would, before the war, have dared to speak his mind about German philosophy so disrespectfully and patronisingly? Not even after he had laid aside his professorial halo would Mr. Santayana have ventured to affront the academic tradition by running *amok* among its most cherished idols. The war has given him a chance of having his fling at German philosophy, or rather at what, as a rival philosopher with a subtly insinuated system of his own, he dislikes about it. Nor has he been slow to exploit his chance. He has ingeniously constructed a monster which he calls 'German Philosophy' and has decked it with the flowers of his corrosive rhetoric. This monster is picturesque indeed, but it is a creature of selection. As Prof. Santayana candidly confesses (p. 6), his "reflexion and description" are "more winged and more selective than what they play upon". He tells us also (p. 11) that "what I propose in these pages to call German philosophy is not identical with philosophy in Germany". Nevertheless (pp. 82-83) "the transcendental theory of a world merely imagined by the ego, and the will that deems itself absolute" are "a new religion" which "dominates the judgment and conduct of the nation. No religious tyranny could be more complete. It has its prophets in the great philosophers and historians of the last century; its high priests and pharisees in the government and the professors; its faithful flock in the disciplined mass of the nation; its heretics in the socialists, and its dupes in the Catholics and the Liberals, to both of whom the national creed, if they understood it, would be an abomination; it has its martyrs now by the million, and its victims among unbelievers are even more numerous, for its victims, in some degree, are all men." Eloquent, but surely exploitation of the war! For if, as Prof. Santayana bids us, we subtract the Catholics, the Liberals, the materialists, the Socialists (p. 83), the old-fashioned Protestants, and the majority of intelligent Germans (p. 11) from

the adherents of "German philosophy proper," there hardly seem enough adherents left for a very formidable or a very national creed.

Even so the theory might pass, if Prof. Santayana's German philosophy were not such a composite monster. He has not merely cut up German philosophy but has put it together again with an anatomical skill exceeding Wells's 'Dr. Moreau'. His monster is compounded of bits taken from the most incongruous quarters. Its supports are taken from Protestantism, for which Prof. Santayana has a cordial Catholic dislike. "The obsequious but incredibly intelligent Leibniz," who "undermined all the doctrines of Christianity" and "insinuated into them a sort of magic heathen individualism" (p. 105), but does not lend himself obsequiously enough to Prof. Santayana's purposes to get a chapter to himself, furnishes the windowless souls that are shut up in themselves but can nevertheless mirror a world. Kant, inventor of the transcendental method, supplies the "radical subjectification of knowledge" (p. 34), and though transcendentalists are not all egotists (p. 43), the 'seeds of egotism' may be extracted from him also (ch. v.). *En revanche* Goethe (though not a transcendentalist) was an 'instinctive egotist,' and "so full of the spirit of German philosophy that it would be a pity not to draw some illustration for our subject from so pleasant a source" (pp. 44-45). Fichte figures of course as the perfector of Trancendentalism, who "purified the system of Kant of all its inconsistent and humane elements" (p. 65) and proclaimed the divine mission of Germany. Hegelism is treated under the caption 'the egotism of ideas'. True, Hegel professed a great contempt for everything subjective, set up 'the Absolute State,' "an idol that feeds on blood," and posed as an acrid and brutal realist. But "this denial of egotism is apparent only, a play within the play". At heart his system is transcendental too, and objectivity for it is only a show created by mind. After Hegel, Transcendentalism openly abjures Christianity, and affirms selfishness, with Stirner; it plunges into a romantic and absurd quarrel with the will to live, with Schopenhauer, who, however, was a 'gentleman' and 'no egotist' (pp. 118-119); it aspires, with Nietzsche, to 'a reversal[1] of all values' (p. 134).

[1] Surely not a correct translation of *Umwertung*.

And so the German philosopher returns to heathenism, despises happiness, pursues red rags and defies death like a maddened bull in the ring (p. 148). But the whole transcendental philosophy is false. "The will is absolute neither in the individual nor in humanity," and a 'quick and honest mind' will exercise its will with courtesy, "discarding the word absolute as the most false and most odious of words" (pp. 167-168).

All this is very pretty and amusing, but 'to be serious for a moment, professor,' as the freshman is said to have remarked to another brilliant Harvard teacher, is it to be believed that any philosopher, or any German, ever believed it all? Is Transcend-

entalism really such a monster? Is it really such a peculiarly German invention? Can its problem be stated without a reference to Hume, can its answer be accepted without a previous acceptance of Hume's psychology? Is the subjective starting-point the discovery of any German prior to Descartes or (perhaps) Protagoras? Can Kant claim priority over Locke as a critic of the human understanding, and was Nietzsche a more radical reformer of the theory of truth than James? Has Fichte a better right to be called the first idealist than Berkeley or Malebranche? Has German philosophy raved more and longer about the Ego than Indian, or been more profoundly pessimistic?

Surely Prof. Santayana has exaggerated the originality of his monster. And it is as monstrous logically as historically. He is quite right in censuring the evasive ambiguities of German philosophy (p. 171), but does he himself eschew ambiguities? What he calls egotism, and defines as "subjectivity in thought, and wilfulness in morals" appears to be a conflation of four distinct things, subjectivism, egotism, egoism, and solipsism, not one of which need, in strictness, lead on to any of the others. The subjective starting-point may, and perhaps should, be adopted by every philosophy, as a safeguard against the rash dogmatism which posits metaphysical realities without inquiring how we are to know them. It need not imply a denial of a plurality of subjects nor develop into solipsism; it is liable perhaps to deviate into scepticism, if it gets off the rails (as philosophies will); but it is quite compatible both with science and with several sorts of realism. Egotism is a common human failing, but its sources are psychological and social, and the egotism of German philosophy springs fundamentally from a defect of academic organisation. For German philosophy (unlike British) has been essentially professorial, and its egotism is the egotism of the professor who represents his subject and grows one with it; being so situated that he need fear neither a colleague, nor a board of trustees, nor even a minister of public instruction, his self-esteem is apt to swell beyond the limit of sanity. As for Egoism, one may well agree with Prof. Santayana that transcendentalism is "a tangle of equivocations" (p. 21), without imagining that even a philosophic tiro could seriously confuse the transcendental self, the Absolute Ego, and his private personal self. Solipsism, finally, is a charge which is brought, more or less plausibly, against many philosophies, but to which no philosophy ever pleads guilty.

Prof. Santayana, of course, knows all these things quite well; but his zeal sometimes beguiles him into technically inaccurate language, which may mislead the general reader. He knows, *e.g.* that the Leibnizian 'soul' was not a transcendental self (cf. pp. 33-36), that the latter is not an object of introspection (cf. p. 12), that the post-Kantian metaphysics are not a continuation but a stultification of Kant's 'Criticism,' and that in Germany also it

has been continued in a variety of ways ; he knows further that for Kant the categorical imperative and the practical postulates derived from it were anything but arbitrary and subjective, and not "things posited by the ego" in any Kantian, post-Kantian, or psychological sense (cf. pp. 61-62) ; he knows, lastly, that no doctrine of an absolute Will is to be found in Hegel (cf. p. 57), and that neither in Fichte nor in Schopenhauer is the absolute Will free to experiment with any assumptions it pleases (cf. p. 51). It will not to do attribute the empirical voluntarism of the experimental theory of knowledge which has been developed in America and England to the apriorist voluntarism of some German metaphysics, simply because Prof. Santayana dislikes them both, and in trying to hit both with the same stone he scores a double miss.

The earnest student of philosophy for examination purposes, then, will not be able quite to trust Prof. Santayana. He has made his monster, not to instruct others, but to divert himself. And a horrid suspicion arises that he has modelled it upon the characteristics of a former colleague, who still represents German science and a Fichtean metaphysic at Harvard—much as those of James's 'irenical Absolute' always showed beneath a thin veil the features of his friend, Josiah Royce. But even if it does not teach us much about German philosophy, we learn a good deal from this book about Prof. Santayana, especially about his attitude towards bull-fights. And we are excellently entertained throughout. Is not that far more than can usually be said of philosophic literature ?

F. C. S. Schiller.

A Budget of Paradoxes. Augustus De Morgan. Second Edition. Volume i., pp. viii, 402. Volume ii., pp. 387. Edited by David Eugene Smith. Open Court Company.

This work is a reprint of De Morgan's extremely witty and learned contributions to the *Athenæum*, with the author's additions. It contains notes by De Morgan and his wife, and many additional ones by the editor. It is published in two handsome red volumes with two portraits of De Morgan, an old gentleman of delightful appearance who recalls Mr. Pickwick.

The book is marred very greatly by the atrocious translations from foreign tongues which some one—not the editor, let us hope —has provided. They contain 'howlers' which would have delighted De Morgan if he had found them in the works of any of his paradoxers. But a scholarly and widely read author such as De Morgan would turn in his grave if he knew of some of the horrors which now appear in his own work. I will quote a few choice specimens. On p. 3, in a reference to the doctrine of the Trinity, the passage *Satius fuisset . . . antequam quod esset*

statuerent . . . quid esset . . . investigasse is translated: 'It would have been better to have investigated what it might be before they determined what it was'. This seems to be equally bad as Latin and as philosophy. On p. 24 the French *devoit-il confondre avec des Ecrivains superficiels, dont la Liberté du Corps ne permet pas de restreindre la fertilité cette foule de savans du premier ordre . . .* is translated by the meaningless sentence: 'Must we confuse him (!) with those superficial writers whose liberty of body (!) does not permit them to restrain their fruitfulness, that crowd of savants of the highest rank . . .' On p. 90 *et seq.* De Morgan quotes the corrections which the Congregation of the Index proposed to apply to the work of Copernicus. Here the translator is again at fault. *Sacræ Scripturæ . . . repugnantia . . . non per hypothesin tractare sed ut verissima adstruere non dubitat* does not mean 'As repugnant to Holy Scripture . . . he does not hesitate to treat (of his subject) by hypothesis but he even adds as most true.' In fact this translation is hardly intelligible English even.

On p. 93, where the same subject is continued, there occur some very odd translations. Copernicus wrote: *Cur ergo hesitamus adhuc mobilitatem illi . . . concedere, magisquam quod totus labatur mundus, cujus finis ignoratur, scirique nequit . . .* ? The emendation of the Index runs: *Cur ergo non possum mobilitatem illi . . . concedere, magisque quod totus labatur mundus, cujus finis ignoratur, scirique nequit . . .* The former passage is translated by the sentence: 'Therefore why do we hesitate to concede to it motion . . ., the more so because the whole universe is moving, whose end is not and cannot be known . . . ?' The latter is translated by the sentence: 'Hence I cannot concede motion to this form, the more so because the universe would fall, whose end is not and cannot be known . . .' It has not apparently struck the translator that there might be a difference between *magisquam* and *magisque*; nor is any reason produced why *labatur* in the first sentence should mean 'is moving' and in the second 'would fall'.

There is another exquisite piece of translation on pp. 53-54 where a circle, which says of itself:

Eram figura nobilis
Carensque sola origine
Carensque sola termino,

is made to have said:

'A noble figure then was I,
And lacking nothing but a start,
And lacking nothing but an end.'

This is (*a*) an impossible translation of the Latin; (*b*) logically absurd. How could a figure lack *nothing* but a start and *also* lack an end, or *vice versâ ?*

These are the more noteworthy pieces of mistranslation in volume i. There are also misprints on p. 53, where *the* is

written for *they;* and on p. 253, where, from the differential equation $\beta(\phi - z)\,dt = dz$, is deduced the equation

$$\beta t = \frac{\kappa}{\phi - z}, \text{ instead of } \beta t = \log \frac{\kappa}{\phi - z}.$$

On p. 392 *quib* is a misprint for *squib*.

Among good things in the first volume I may mention Napier's 'killing dilemma' to the Church of Rome (p. 67); the statesman-like testimonials of Jean Bernouilli and Samuel Koenig to an importunate circle-squarer (p. 151); and De Morgan's story of seeing in the library of the British Museum a highly coloured work with the title *Blast The Antinomians*, which proved not to be an uncharitable forecast of the future state of that sect, but a history of it by a writer who combined the possession of this vigorous name with a contempt for the pedantries of punctuation. ('Blastus! thou shouldst be living at this day; Maxse hath need of thee!')

Readers of MIND will also be interested in Mr. Wirgman, 'the Kantesian jeweller,' who demonstrated his master's system to De Morgan by blowing cigar smoke over a bowl of goldfish. He was defended by Brougham against a Society for the Suppression of Vice, which charged him with selling snuff-boxes containing pictures which appealed to the bucks of the Regency for reasons that would hardly have been recognised as purely æsthetic by the author of the *Critique of Judgment*.

This story brings me to an amusing fact (omitted by De Morgan) about Thomas Taylor, the Platonist, who is mentioned in this Budget. Taylor translated the *Golden Ass* of Apuleius, in which he saw all kinds of profound metaphysical truths. Being a very respectable old gentleman he omitted all the bleaker passages from the body of the work; being a very conscientious one he translated them all and collected them at the end, thus earning the undying gratitude of those whose taste for obscenity is stronger than their Latin scholarship.

Occasionally we get very interesting glimpses of De Morgan's own views; these are always acute and valuable. Thus he gives a long review of an edition of Bacon's works by Spedding, Ellis, and Heath (p. 76 *et seq.*). Here he makes a very reasonable protest against the English idolatry of Bacon as the founder of induction, and states his own admirable views as to the real nature of inductive reasoning and the real merits of Bacon. It is in a footnote on p. 76 that we are told that Spedding was 'a fellow of Cambridge'. I am afraid that the Theory of Logical Types makes this expression a meaningless noise; but the error is excusable in an American editor. But I can hardly excuse the expression 'suicided' used in a note on p. 186 to describe the end of my Lord Castlereagh[1] of happy memory.

[1] May we be permitted to hope that his late Lordship's troubled spirit has now found rest in studying the *Defence of the Realm Act* and noting its administration?

Throughout the whole work we get a very pleasant picture of De Morgan as a man who combined great learning with a genuine love of truth in every field and a hatred of every kind of intolerance, political or religious. These characteristics, added to his strong sense of humour and his logical acuteness, remind us of the greatest English logician of our own day, also a member of De Morgan's own college. And this resemblance is not diminished by a certain rather lovable tendency to be a little intolerant in his hatred of intolerance.

The second volume opens with some very acute remarks on religion. De Morgan was obviously inclined to be an Unitarian Theist and is equally opposed to the narrow-mindedness of priests and of orthodox scientists. The former opposition is charmingly illustrated by his comparison of the Roman and Protestant Communions to two dishonest milkmen whose real difference is that one puts milk into water and the other puts water into milk, but who accuse each other of far worse kinds of adulteration. And the latter opposition is shown in De Morgan's attitude towards spiritualism ; he was compelled to accept some of the phenomena, but declined to hold that the spiritualistic explanation was more than one possible hypothesis.

This volume is the happy hunting-ground of De Morgan's two arch-paradoxers, Mr. James Smith of Liverpool, who proved that $\pi = 3\frac{1}{8}$ by *assuming* this as an hypothesis and proving that other hypotheses were incompatible with it, and Dr. Thorn, who attempted to identify De Morgan with the Beast of the Revelation. The author is at his best in castigating these two very pertinacious paradoxers ; it was obviously a labour of love, and they—though totally unconvinced—seem to have entered into the spirit of the contest.

The reader will also be pleased to make the acquaintance of Mrs. Cottle of Clapham, who appears to have considered herself a good deal higher than the angels ; and to hear of the small child, carefully trained by religious parents, who, when told ' Papa couldn't dance on his head,' replied ' No, but Dod tood ! ' And the mathematician may be interested to learn that Mr. Tresham Dames Gregg's differential equation for the 18th Psalm is

$$\frac{du}{de} = ce\frac{dx}{de} + ex\frac{dc}{de}x + cx.$$

It is perhaps fitting that the volume which the author has filled with the most astonishing examples of human folly should be provided by the editor with some of the brightest gems of mistranslation. Two of them are good enough for *Punch*. On p. 166 the sentence *C'est donc pour arriver à ce parallelisme . . . que Copernic a cru devoir recourir à ce mouvement égal et opposé* becomes in English : ' It is therefore to arrive at this parallelism . . . that Copernicus *feared* (!) to be obliged to have recourse to this equal and opposite movement '. *Cru* as the past participle of *craindre* is fairly good ; but on p. 365 there is something

better, for there *Christe . . . qui cuncta pace tueris* is translated 'O Christ who . . . slayst (!) all things in peace'. *Tueris*, I suppose, from the well-known *Latin* verb *tuer*, to kill! There is another 'howler' in the translation of the first line of the poem in which this sentence occurs; but I have doubtless said enough to make it clear that a delightful and scholarly book, well bound and well printed, has been almost ruined by ignorance which reflects equal discredit on the translator who exhibited it and the editor who passed it.

C. D. Broad.

VIII.—NEW BOOKS.

Studies in Animal Behaviour. By S. J. Holmes, Ph.D., Boston: Richard G. Badger, 1916. Pp. 266.

Holmes' latest book is not intended to be a systematic treatise of Animal Behaviour. The author selects for discussion mainly those subjects to which his attention has been directed in his various researches, attacking them this time, however, from a somewhat more general standpoint. Three of the chapters (vi., xi. and xiii.) together with parts of chapter iii., it may be noted, have appeared elsewhere. The several topics dealt with are very diverse, comprising the evolution of parental care; tropisms and the problem of orientation; intelligence, adaptation and the nature of learning; behaviour and form; cell-behaviour; the death-feigning instinct; sex, its recognition and its *rôle* in the evolution of mind; some new observations of a monkey's behaviour; and an introductory chapter on Animal Psychology. The various chapters, nevertheless, are "not devoid of a certain unity of aim". Throughout, the treatment is directed by the controlling idea of the fundamental importance of instinct and of inherited organisation. These form the bedrock out of which all adaptation and modification arise, and on their nature depends the quality of the superstructure. Thus we find Holmes insisting on the directive *rôle* played by instinct in determining certain features of bodily structure and organisation (p. 45). Some experimental evidence in support of this view is found in different experiments of Child's and of the author's on regeneration: the results suggest that the part played by the gross general behaviour of an animal, though subordinate to that taken by the internal processes, is nevertheless instrumental in the determination of organic form (p. 175). In the chapter on cell-behaviour the conception is extended to the minute bodies concerned in the finer details of organised structure. Lastly, it is shown that the sex instinct influences behaviour, and incidentally bodily organisation (ch. xiii.).

At the same time the writer no less forcibly insists that the advance towards intelligence itself is, likewise, almost entirely dependent on the character of an organism's instinctive endowment. Associative memory (here adopted as the criterion of intelligence, p. 121), is valueless *per se*. "There must be some principle of selective association if experience is to be turned to any account, and this principle is supplied by the animal's stock of congenitally adaptive reactions. . . . It is really instinct that makes intelligence useful" (p. 160). On this view, it is clear, that the adaptiveness and plasticity of instincts and reflexes are of the first importance. The phenomenon of reversal secures plasticity, to some extent, in the case of tropistic reactions (p. 93). But instincts themselves also vary and form new relations. The unique condition of autocatalepsy suggests, for example, that an instinct which has originated with reference to one feature of the environment may finally come to be set in operation by quite a different cause (p. 216). Further, one instinct in

the course of its elaboration, may give rise to another instinct; the altruistic instinct is thus said to develop out of the parental instinct (p. 36): while articulate language is an indirect but stupendous outgrowth of the primitive sex-call (p. 243).

The writer is far from adopting an extreme standpoint. He holds that animals have "ideas of a simple sort" as opposed to abstract and general ideas, together with "a certain power of inference" (p. 34). This is supported by his observations of a specimen of *Pithecus sinicus* (pp. 259, 261). Nor can he be classed as a rigid behaviorist, since we are told that death-feigning in birds and mammals is doubtless associated "with a tolerably acute consciousness of the situation. It involves a more or less deliberate intention to profit by the deception, yet at the same time it is probably not a result of conscious reflection. The instinct is there or else such a course of action would not occur to the animal's mind" (p. 208).

Holmes repeatedly draws attention to the insight shown by Darwin and by H. Spencer. Still, it is surprising to find that Darwin's account, at second-hand, of the maternal instinct in monkeys is not supplemented by the recent interesting observations of Yerkes.[1]

There are a few minor points on which issue might, perhaps, be joined. For instance, in the absence of any completely controlled tests on the colour vision of Fishes some hesitation might be felt in quoting, without modification, the statement that the adult male rainbow darter may be distinguished by means of his sexual colouration as well as by his behaviour (p. 231). Again the remark that "there is little evidence that pleasure-giving stimuli in general tend to reinforce themselves, and where reinforcement occurs it is probably due to secondary associations with other reflex arcs" (p. 147), seems to overlook the considerable class of kinæsthetic stimuli that give rise to the so-called circular reaction. The attempt to represent altruistic activity as an outgrowth of the parental instinct alone (pp. 47 *seq.*) would also appear somewhat arbitrary, since the gregarious instinct in all likelihood may have given rise to altruistic acts and feelings. Furthermore, Holmes' defence of his use of the term 'congruity,' in the interesting reply to Thorndike's criticism (p. 150), seems rather to weaken his case. Originally it was shown that reinforcement might be expected to occur whenever the second and subsequent reactions of a series are *organically* congruous with the preceding reactions, as are the several steps in a chain of reflexes (p. 135). In order to meet Thorndike's point Holmes now writes that when certain acts, possessing no apparent congruity, "have been performed a number of times in close sequence we cannot assume that they will not form a congruous association" (p. 150). This does not seem very helpful; for it is difficult to understand how, on this assumption, the reinforcing process is able materially to assist learning since, at most, the neural adjustments can only be established *pari passu* with the stamping in of the association in question. The congruity is no longer strictly pre-existent. Moreover, in so far as it is a secondary condition arising within individual experience, and is not restricted to "instinctive acts of a congruous or incongruous kind" (p. 153), it would seem better to rest satisfied with the statement that "the acts which are stamped in are those which are *consistent* (italics mine) with the performance of an instinctive activity which they have been the means of setting in operation" (p. 151).

The book is simply and clearly written and should prove of interest to the general reader as well as to the student. The author is at his best, perhaps, in the admirable discussion of tropisms and the problem of

[1] *Journ. of An. Behav.*, v., p. 403 *seq.*

orientation. The chapter on the instinct of death-feigning is also full of interest. The new observations on the mind of a monkey are sympathetically interpreted and contain some important points. For the key-note to the whole, however, reference must be made to the three chapters treating of adaptation and the learning process. At times the mode of treatment is suggestive rather than complete, and leads to the hope that before long the author will present us with a fuller treatment of some of the subjects broached.

One misprint at least has escaped notice, for on page 155 line 3, we read 'comparatively' instead of 'comparative'. In another edition too, many readers would doubtless welcome an indication of the degree of magnification of the figures given in the various plates.

E. M. Smith.

Principles of Social Reconstruction. By Bertrand Russell, F.R.S. London: George Allen & Unwin, Ltd. Cr. 8vo., pp. 251. 6s. net.

The short preface states the intention of this book with perfect clearness. The author holds that in the philosophy of politics more importance should be assigned to impulse than to purpose; and that impulses can as a rule be divided into possessive and creative, of which the creative aim at goods not decreased by sharing, while the possessive aim at securing things which cannot be shared. The best life is that built on the creative impulses, and the worst that built on the possessive impulse. When we have added that "The State, war, and property are the chief political embodiments of the possessive impulse; education, marriage, and religion, ought to embody the creative impulses," we have before us the structure of the book, in which these six subjects form the titles of consecutive chapters, preceded by one on "The Principle of Growth," and followed by one on "What We Can Do".

Impulse, in the author's usage, is a wide word. It covers, I think, the desires which terminate upon their objects; for when it is contrasted with desire, the desire is such as, for example, makes us do our work not for its own sake but with a view to pay. So impulse is not merely what makes children run and shout, but covers the keen and precise consciousness, for example, of the artist in his work, as long as the work itself and nothing beyond is the stimulus. Impulse is highly educable, and influenced by conditions, and the same impulse is even capable of opposites, though also there are fundamentally opposite impulses (leading to life and to death). Possessive and creative activities seem indeed in the end (p 233) to spring from the same vital impulses. Mr. Russell clearly arrives at more unity than he started with. A somewhat different set of distinctions appear in the chapter on Religion; man's activities spring from instinct, mind, and spirit; instinct is what is animal, personal, success-seeking in us; mind is the impersonal life of thought; spirit is impersonal feeling, the feeling of eternal value. You can see the three in patriotism; instinct there is home-affection; mind pronounces this exclusiveness irrational; spirit generalises it into the love of mankind. The true experience of religion belongs to spirit. Unity of the three is required for perfection.

In Mr. Russell's hands, these conceptions and distinctions are the basis of suggestions for social reconstruction which in their positive and general quality command approval, always favouring freedom, initiative, the love of eternal values, the spirit of construction and creation, rather than mere economic well-being. He is a good deal interested in Syndicalism, as caring more for status than for wages.

Why is it, then, that, as I must believe from my own experience, a large part of the social and ethical criticism will prove violently repugnant to the careful and sober student of social ethics? I think for a reason which can be gathered from the brief sketch of the groundwork given above. Mr. Russell sees all these tendencies and capacities in man, but he does not see them as characters of a single principle, except indeed in describing the principle of growth (p. 24); which, as I so often think of suggestions in Mr. Russell's writing, would transform the whole of his philosophy if it were worked out and applied.

In the State, for instance, and in property, Mr. Russell sees the mere incarnation of purely possessive impulses—a weary destructive and artificial system, living by reflective desire and making joyous impulse and creation impossible (I suspect that Mr. Russell came near taking all "impulse" as creative, and all "desire" as "possessive," but this is not what he says). He does not see these things as many-sided growths, labouring to adapt themselves in hundreds of directions at once, always partially disfigured and ossified, but yet having in them together, and as elements of the same principle of growth, *all* these strivings and capacities which he so lightly separates and contrasts.[1] Thus a great part of his writing reads to one like myself as a succession of calumnies against the human race—admitting no deep-rooted sense of right in war, no initiative and self-expression in property, no high courage and desire for a liberal life in romantic marriage; seeing in existing education an attempt to prevent minds from developing, and in short in all institutions mere fetters of the past, and not rather—we may take for a test case common religious practice—growths which contain in principle what we shall need, though a work of construction and selection is always before us, and always will be.

Three special points I must find room to notice. The Sovereign World State, Mr. Russell points out, which he hopes for, would have to bring about results analogous to those of war, following on changed balances of conditions. You cannot always have peace, if peace is to be purely static. This is wise, I think, and candid. It touches the heart of the problem.

I am surprised at so critical a writer as Mr. Russell accepting the current terms "best" and "worst" so lightly in the selective birth-rate discussion. When it was an axiom that to have a large family was to break the law of prudence imposed by Nature on mankind; this was to say that the selective birth-rate was in favour of the imprudent. But that tenet being obsolete, the thesis must be proved materially, and that I take leave to say it cannot be. You cannot argue from the feeble-minded to the general public, and the case of the former is settled by legislation. Does Mr. Russell really think the "successful" type, which limits its family from caution or snobbery, the "best"? There is much more to say about this, but perhaps not specially in MIND.

And lastly I would point out that for Mr. Russell's main line of advance—that of marked devotion to the eternal things, with which I am heartily at one, the theory of the State has been absolutely clear and decided from Plato through Aristotle to Hegel and Green?

[1] To bring our minds fairly together, we should confess how we respectively approach the thought of the State. I approach it through familiarity with long self-sacrificing lives spent in the service, on behalf of the State, of the children or the poor, or from recollections of the change and opening of the people's minds, within my own experience, from stolidity and resistance to welcome and intelligence in such matters as sanitation. The State, I consider, is then awakening in them.

BERNARD BOSANQUET.

Numbers, Variables, and Mr. Russell's Philosophy. By P. Richardson and E. H. Landis. Open Court Co. Pp. 59.

This little book is reprinted from *The Monist* of July, 1915, and is bound up with the preface to a forthcoming work by the same authors in thirteen parts called *Fundamental Conceptions of Modern Mathematics.* The first part of this has been received and will be noticed in due course.

The present work criticises Mr. Russell's theories of mathematics entirely with reference to *The Principles of Mathematics;* nothing is said of the *Principia* or of logical articles in Mind and other places which have appeared since 1903 and shown modifications in Mr. Russell's views.

The first criticism is that Russell makes all mathematical arguments to be of the form A, B, C, etc., imply T; whilst mathematics asserts its premises and so asserts its conclusions. This is hardly correct. If it be true that pure mathematics can be reduced to logic the ultimate premises of pure mathematics will be the axioms of logic. These are asserted by logic, and therefore anything that can be formally deduced from them is also asserted by logic.

The most severe criticisms that are passed in this book are on Russell's theory of number. He is held to be wrong in thinking that two classes can have the *same* number; if the classes differ they only have *equal* numbers. In consequence of this he is blamed for regarding such symbols as *2* as proper names, and such sentences as $2 + 2 = 4$ as standing for singular propositions. According to the authors there are as many different 2's as there are couples and the symbol *2* is a general name for these, and arithmetical propositions are universal and not singular. This $2 \times 3 = 6$ means every product of a two by a three is either equal to or identical with any six. The point of the disjunction is that the product will only be *equal to* a six which belongs to a class other than that formed from the two particular classes to which the two and the three in any given case belong.

Now this theory of the authors cannot, I think, be refuted. It might be true; but it is more complicated than Russell's, and the arguments which they produce for it seem to me quite worthless. They urge that two different objects cannot have the same attribute but only similar attributes; identity of attribute only refers to a single object kept under continuous observation. No ground is produced for this opinion except the authority of Mr. Spencer with whom Russell is presumed to be unacquainted! Equality then is perfect likeness between the number attributes of several classes. I am certainly not impressed with the argument that it is as foolish *e.g.* to call the number of my eyes the same as the number of my ears as it would be to call two precisely similar houses the same house. Yet this seems to be the main argument which the authors use.

It is further objected that the definition of numbers as classes of similar classes is circular; 'it is like defining whiteness as the class of all white objects'. But it is not. Similarity of classes is defined without any reference to number, whilst white cannot be analysed. If you could show that the statement *A and B and . . . are white* is equivalent to *A and B and . . . have the relation R to each other,* when R does not involve the notion of white, there would be no circularity in defining whiteness as the class of all white objects.

Russell's definition of quantity and his distinction between quantity and magnitude are adversely criticised. The authors do not accept the argument from the Principle of Abstraction for the absolute theory of

magnitude; and here we may sympathise with them. They themselves use quantity to cover (*a*) Russell's quantities (*e.g.* foot-rules, pounds of butter, etc.); (*b*) Russell's magnitudes (*e.g.* 2 feet, 1 pound); and (*c*) abstract numbers.

Variables we are told are not quantities; nor are they mere symbols; they are classes of quantities in which it is the *relations* between the quantities and not their other properties which are important. Russell is blamed for his attempt to extend the notion of variables to cases where there is no reference to quantity and for his attempt to associate them with the notion of *any* as distinct from *every*. I am inclined to think that there is a distinction between any u and every u, though it is hard to bring it out. It is certainly an unfair criticism of Russell to say that the opposition in which he puts *any* and *every* implies that what is about *any* number is not about every number. *Any* and *every* might be different concepts and yet what is true of any u may necessarily be true of every u.

It is contended that Russell got his notion of variables by considering logical and mathematical identities like $(x + y)\ (x - y) = x^2 - y^2$. But if you take the equation $x + y = 10$ you cannot interpret this to mean: Any number added to any number is equal to 10; so that Russell's theory of variables will not apply to these cases. The authors regard such cases not as examples of variables; the x's and y's are just class names for classes of numbers and the equation expresses a functional relation between *corresponding* numbers of these classes. The true account, however, surely is that both equations are proportional *functions*; that in each the variables are only restricted by considerations of type; but that the former gives true *propositions* for *all* values of x and y, whilst the latter only does so for *some* values.

A word of praise is due to the authors for pointing out many places in the *Principles of Mathematics* where Russell is far from clear as to whether he is talking of verbal expressions or the objects that they stand for. But they would have found most of their criticisms answered by anticipation if they had studied Russell's later writings.

C. D. Broad.

Authority, Liberty, and Function in the Light of the War: a Critique of Authority and Liberty as the Foundations of the Modern State, and an attempt to base Societies on the Principle of Function. By Ramiro de Maeztu. London: Unwin & Allen. Cr. 8vo., pp. 288. 4s. 6d. net.

The contents of this book have appeared as articles in the New Age, but they were intended for a complete work, and they form in fact a very coherent treatise. The author's positive thesis is the desirability of ordering society on a "functional" system, meaning that rights and claims are to depend on the discharge of function, which = the production of values. From this point of view he advocates Syndicalism, and at the same time the system known as that of National Guilds. In the main point which interests him they coincide, and he does not, I think, take trouble to distinguish between them.

His point then is that the only just rights and laws are "objective," as opposed to "subjective" rights or rights attaching to mere "personality," which are for him the enemy. Objective rights are based on function; subjective rights are free and arbitrary (p. 50). The latter, as I gathered, may be anything from the old-fashioned "natural" right

of man, to any right of any individual irrationally granted or allowed to be retained. Irrationally (my phrase) would mean without reference to function. Personality for him in this context means I think mere individuality—the being a man apart from any special activity.

With this view for its thesis and climax, the work falls into three books, the last of which is concerned with the positive advocacy of the principle of Function and Value, while the two former contain destructive criticisms on the principle of Authority and Power on the one hand, and that of Liberty and Happiness on the other hand.

For the author, the principles of Authority and Liberty, which he considers the present war to have reduced to an absurdity, are divergent interpretations of the principle that good lies in the autonomous will; inferences disastrous in their results, but necessary if the radical falsehood that sovereignty belongs to will is once accepted. From this must arise either the doctrine of the maximum power of rulers, *i.e.* of authority, or that of the maximum power of individuals, *i.e.* of liberty. The former is the German heresy, the latter is the heresy of English Liberalism; so in substance I think the author holds.

The escape from this whole doctrine of the will, and its attendant fallacies, comes by adopting Mr. Moore's doctrine of the common object or value, which is not a subjective will. The word object and objective is the key-word to the writer's thought. He feels that in it, the value for which men associate themselves, and not in any common or several mind of the associates, you have a test and standard which really tells you something

I wholly accept of course, following Plato and Aristotle, the idea of a Society based on function, and more particularly I admire the author's treatment of happiness, art, and luxury. I think, however, that when one came to reckon up the functions which are united in the individual, including *e.g.* citizenship (p. 280), one would find that their unification involved more of a common general purpose than the author sees. Of course, philosophically, his error is for me the denial of identity.

What I regret about the book is the polemic against the "German heresy" and the positive idea of freedom, which occupies so much of its space. I cannot go into it further than to say that it seems to me to be wholly made up of misunderstandings, and to be altogether unnecessary. For the traditional theory of the State *is* a theory of function and values, and the positive doctrine of freedom is part of it. And Mr. Moore's doctrine of goods, though I am prepared to controvert it in certain respects, does not really make any difference to this thesis. Indeed the author, though following Mr. Moore, uses the term "common good" exactly as T. H. Green might have used it (p. 255). One more point. In basing justice on function, I do not think the author shows his preference as between proportion of advantages to estimated value of service, and necessary equipment for a determinate service (cf. pp. 196 and 271). I believe in the latter. I fear, though I am not sure, that he leans to the former.

BERNARD BOSANQUET.

Psychological Studies from the Psychological Laboratory of Bedford College. Edited by BEATRICE EDGELL. University of London Press. 2s. 6d.

Miss Edgell, in her modest preface to this collection of papers, says that the studies do not claim to be original: they are largely repetitions of experiments on the lines of previous investigations. They are none the less valuable for that, because such problems as they deal with—the

psychology of the learning and thought processes—cannot be decided upon anything less than the work of many investigators.

This collection is a very useful contribution, and it is especially praiseworthy in that the researches were done as part of the regular work in connexion with an Inter-Collegiate course of lectures. In the first research, "A Study of Learning and Relearning in Mice and Rats" (observers M. Macgregor and J. Schinz), mazes of the type described by Yerkes were used for the mice. The research is chiefly interesting for the indications that successful movements acquired in learning one maze did not hinder the mice and rats in learning another which demanded a different series of turns. Indeed it is suggested that learning that takes place after practice on other work, is more successful than the learning which follows a period of idleness: in other words, we find, even at this stage of intelligence, a kind of transference of training effects, and something more than mere mechanical learning of motor habits. In view of the fact, however, that previous investigations point to their being no such general improvement, the evidence afforded can scarcely be regarded as convincing, though it suggests the advisability of further careful investigation. [More recent researches confirm the discovery: Note added when correcting proofs.]

The second research, "A Study of Controlled Association," by E. H. Wilson, was a repetition of Watt's experiments on a similar topic. It broadly confirms Watt's results and is especially interesting as affording yet another series of experiments which support the view that imageless thought is possible. In the third paper Miss Lucy G. Fildes gives the results of an experimental inquiry as to the nature of recognition. The experimenter was careful to use four different kinds of material in four successive experiments. It would have been good if more than three subjects could have been used in at least one of the experiments, owing to the great individual variations which seem to exist as regards the process of recognition. Also it would have been an interesting variation if an experiment on the recognition of ideas could have replaced one of those on the recognition of seen objects. The experiments indicate that while image and motor sensations often occur in the process of recognition, and are sometimes the main factor in determining recognition, they are by no means essential and may be quite irrelevant; and that the true nature of recognition seems to be in a consciousness of a relationship existing between what is present and what is past in experience, the bond between the two being one of "meaning". But this apparently describes the act of judging the object to be familiar, it does not decide the *cause* of this judgment, which it seems likely may lie in the "conscious attitudes or feelings" which the author says were found to accompany the process of judgment, or to occur as "intervening steps in its development rather than as a true part of that process itself," but the bearing of which on the development of the process of recognition it was impossible to discover.

The fourth paper, by B. A. Lunniss, is "A Study of Thought Processes". The first three methods of experiment (*e.g.*, fitting a proverb in a list of twenty proverbs to an analogous or contradictory one in a preceding list of twenty proverbs) seems to depend rather too much on mere memory work for an ideal experiment on thought processes. The experiments afford further evidence of imageless thought and indicate that Buhler's "ways of knowing"—the consciousness of relation, of principle and of reference—are an essential part of the thought process in judging and in understanding a thought.

Dr. Edgell is to be congratulated upon this first volume of psychological studies from the Laboratory of Bedford College.

C. W. Valentine.

Psychologie der Zeitauffassung. By VITTORIO BENUSSI. Die Psychologie in Einzeldarstellungen. Heidelberg, Carl Winters Universitätsbuchhandlung, 1913. Pp. x, 581. Price, 9 marks. Bound in linen, 10 marks.

This excellent account of experimental observations on the apprehension of time contains much hitherto unpublished work. It would be impertinent to criticise what can only be tested by repeated observation, and it would be unprofitable to present a mere summary of the results. The hasty reader will find excellent short summaries at the end of each chapter. But the mention of a few main points, and of the general conclusions of the writer will serve to draw attention to the work. (I shall translate Auschauung by 'inspect,' and auschaulich by 'inspective'.)

From the time that may strictly be called inspective (0·7 to 0·8 sec.) we pass in either direction gradually towards uninspective times. When the time is shortened, its limits take more and more hold of the attention. When it is lengthened, the whole time ceases to be present to us in all its parts, and can be grasped only by the aid of memory concerning the localisation of its past term in the past. The inclination of the subject towards comprehending the limiting terms of a time as a unity or towards analysis of the length of time has therefore considerable influence on the apparent length of the time. These inclinations are also subject to practice. The threshold of time inspectivity on the lower side lies from 0·4 to 0·2 sec.; intervals from 0·04 to 0·07 sec. appear in the peculiar form of the 'trill,' which is not a time experience or a time, but at most a mere succession or even only a group of noises. From 0·07 sec. to 0·22-0·44 sec. we get an experience that has been called 'group-accent' (p. 40 f.). Beyond these lengths a pause of time does seem to bind the two limiting noises into one. A unitary stretch of inspective time may vary in objective length from 0·9 sec. to over 2·3 sec. These times are 'forms' (Gestalten) and are like other 'forms' subject to modification by a number of influences.

These show themselves readily in the judgments of identity or difference given regarding two successive intervals of time marked out by three sounds. Correct psychological judgments do not necessarily run parallel to the objective relations. If a subject tends to unify the first or the second two sounds, a judgment of equality will be given only if the time between them is increased over that between the other two. The judgment greater may hereby spring sharply into the judgment less without passing through a point of indifference. A real decrease in one of the times has of course a direct effect upon the apprehension of time-form; but the effect of emphasising one of the sounds is rather irregular.

Of two long times the second tends to seem longer, probably because of a subjective shortening of the first; the first is less attentively apprehended. Operations belonging to the scope of memory can hardly be postulated here as the pauses in question last only some 1·8 sec., and as such operations would have to produce shortening always and not merely often. Appeal to the work of the absolute impression neither excludes memory, nor does it avoid the objection just made. Apart from manner of emphasis and degree of unification which may shorten either of the two times, there seems to be no regular tendency modifying either of two short times. Mere succession therefore of itself has no effect; the effects are due to attention, emphasis, and unification.

An interesting and important chapter follows on comparison in general, and in particular relation to time. In it, as indeed throughout the whole book, Benussi makes important contributions towards the proof of the presence and operation of 'forms' and towards the discrediting of other

processes, such as attention, alleged to be sufficient cause of the phenomena in question.

Regarding the origin of our experience of time, Benussi points out that the size of the temporal distance or length between any two individualised moments can only be won by attention to the time-points which connect them. This necessity is clearly emphasised by the relations he has established between time-magnitude and attention. The distance between two given tones or colours can be got without this, merely by apprehension of the two tones or colours in their specific individuality. The memory is not to be made responsible for the origin of our time sense as Durr supposed. It would be more natural to suppose that time consciousness is a condition of memory. But for the present no useful and satisfactory hypothesis regarding the nature and origin of time experience can be formed. Introspection by the method of mean error lends no countenance to the view that times are measured by the pastness character of their first terms, but only by the lengths of time which lead to their second terms. Nor could we account for the subjective modification of times by emphasis, by temporal surroundings, by temporal position, by the pause, by the direction and sharpness of attention, and by the duration of expectation, if we had to evolve their differences out of differences in a character of their first terms. We must rather suppose that successive impressions display time characters which individualise them just as at times the tones of a rising and falling continuum are mutually individualised by properties of pitch. Time or time length is then to be supposed to be founded upon these attributes. What these attributes consist of, we do not know, nor why they are modified when a greater or less number of time points are clearly grasped, and so localised between two given time end-points. The author, however, feels certain that the inner process from which the apprehension of time develops is most intimately related to those intellectual form-apprehending processes which allow us to direct our thinking upon melodies, differences, and in general all kinds of 'distances'.

HENRY J. WATT.

Das Gedächtnis: die Ergebnisse der Experimentellen Psychologie und ihre Anwendung in Unterricht und Erziehung. By Dr. MAX OFFNER. Dritte Auflage. Pp. 312.

In this, the third edition of the book, the practical applications of psychological facts in reference to learning and remembering have been dealt with more fully than in the previous editions, though at the same time the author says he has resisted requests to lessen the amount of space devoted to the discussion of theory. More attention has also been given to relevant pathological phenomena. These additions increase the claims of the book to be, if only on the ground of comprehensiveness, probably the best monograph as yet produced on the psychology (general and experimental) of memory. Indeed the discussion of such topics as the conditions of attention and its relation to interest, and apperception, the education of voluntary attention, the comparative value of learning poems, etc., by the "whole method" or "part method," make the book almost a general psychology of the learning process. It may be of interest to recall that the author of this book and of one of our best monographs on Fatigue, is a teacher in a Gymnasium.

The work might well be shortened by the elimination of occasional statements and discussions of the obvious: and an authority on mental fatigue ought to be less addicted to sentences of ten, twelve, and even eighteen lines in length.

C. W. VALENTINE.

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Charles A. Mercier, *On Causation and Belief*, London, Longmans, Green & Co., 1916, pp. xii, 228.

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IX.—PHILOSOPHICAL PERIODICALS.

British Journal of Psychology. Vol. vii., No. 2. **T. H. Pear, A. Wolf, T. W. Mitchell, and T. Loveday.** Symposium on 'The Rôle of Repression in Forgetting'. [Pear adopts a modified Freudian attitude, emphasising the importance of repression in forgetting—other than the type of forgetting more aptly described as decay of memory and attributable largely to physiological causes. Wolf accepts reality of act of "repression" by which an idea is expelled from consciousness, but not that of continued "resistance" by which reappearance of idea is prevented. Forgetting is sufficiently explained by "absence of generally recognised conditions of retention and recall". Mitchell objects to Wolf's terminology, and urges that it is the attraction of ideas by other repressed painful unconscious ideas (rather than their repulsion of other conscious ideas) that leads to forgetting and causes resistance. Repression takes place in childhood, not so much by the turning from painful ideas and feelings, but in accordance with principle of "adaptation to a future environment," the usefulness or uselessness of memories deserving more consideration than Freudians have given them Loveday suggests that Freud's doctrine of repression involves the presence, as thought, in unconsciousness, of all ideas which can be recalled, and points out that unpleasantness often causes experience to be better remembered.] **Carveth Read.** 'The Psychology of Magic.' [Discusses the origin, evolution and decay of some magical beliefs.] **W. H. Winch.** 'Some New Reasoning Tests Suitable for the Mental Examination of School Children.' [Series of tests devised which correlate highly with one another, and also with position in school, except that Standard V., a class usually taught by a teacher specially interested in Logic, did better even than Standards VI. and VII. The stages in development of capacity for analysis of problems are illustrated.] **M. J. Reaney.** 'The Correlation between General Intelligence and Play Ability as Shown in Organised Group Games.' [A positive correlation ($r = 0{\cdot}32$) discovered between play ability and general ability; correlation unaffected by sex or social position of children.] **Nellie L. Perkins.** 'The Value of Distributed Repetitions in Rote Learning.' [Confirms results of previous experimenters that distributed repetitions, even with intervals of two or three days, are superior to equal number of repetitions closely following one another.]—Vol. vii., No. 3. **Agnes L. Rogers** and **J. L. McIntyre.** 'The Measurement of Intelligence in Children by the Binet-Simon Scale.' [Confirms on the whole the utility of the Binet-Simon tests, but suggests a repetition of the same groups of tests at ages 4-6, 7-9, 10-12, etc., instead of a new set of tests for each year. Criticises especially Binet's evaluation of children's definitions, in favour of definition by function as being often better than definition by description. Defends retention of tests which are partly dependent on school training in view of universality of such training.] **E. Roffe Thomson.** 'An Enquiry Into Some Questions Connected with Imagery in Dreams.' [Proportion of different types on imagery in dreams tends to be the same as in waking life, and the dominant imagery tends to carry the central *motif* of the dream. Sensory stimuli play only small part in formation of dream and are often distorted before being worked into texture of dream. Critical thought in dreams may be as logical and consistent as in waking life. Freud's theories of Condensation, Displacement, and Dramatisation confirmed, but not his assertion as to the universal influence of unconscious wishes, and of the sexual element in dreams.] **Stanley H. Walker.** 'Immediate Memory and its Evaluation.' [In learning series of nonsense-syllables

and figures intelligent children tend to apprehend the series as a complex whole, backward children as a series of isolated units. Perseveration and "regressive inhibition" more characteristic of backward children.] **J. C. Flugel** and **William McDougall.** 'Some Observations on Psychological Contrasts.' [Evidence leaves it an open question whether there is one general law underlying all contrast effects or whether contrast effects of different kinds (*e.g.*, in judgments of weights, lengths of lines, duration, rate of seen motion) have quite independent causes.]

Journal of Philosophy, Psychology, and Scientific Methods. xiii., 19. **R. B. Perry.** 'The Truth Problem. I.' [Proposes to solve the problem "by distinguishing four senses of truth, and then accepting them all, each in its place". The senses are (1) the 'logical' sense, for which the distinction between truth and falsity is merely that between positivity and negativity; which, however, does not imply acceptance and rejection; (2) the 'ontological,' which arises when the assertion sign is attached to a symbolic propositional complex; (3) which "is perhaps nothing more than the distinction between a universal and one of its instances".] **D. F. Swenson.** 'The Logical Significance of the Paradoxes of Zeno.' [Suggests, against Russell, that "instead of implying the unreality of change, they may be regarded as demonstrating the impotence of logic to construe the reality of change". Zeno first posits a series which is incomplete and infinitely divisible by definition, and then refuses to pass into something *qualitatively different* beyond it; in this he is right, on the principle that if a thing can be done once it can be done again, which applies to all reflective processes. There is always a *leap* in a qualitative transition whether we start from a 'positive' or a 'negative' definition of infinity: "every change and every transcendence is a breach of logical continuity, and hence, from the point of view of logic, a paradox," but "this does not mean that change is mere appearance"; only that philosophers have misunderstood the scope of logic.]— xiii., 20. **G. A. de Laguna.** 'Sensation and Perception. I.' [An important paper which challenges the traditional assumption that the 'sensations' which the introspective psychologist's attention analyses out of the 'complex' percept may be regarded as a genetic as well as an analytic 'element,' and urges that "sensations are not genetic elements, but are the products of the same individual development which yields perceptions. The child does not see colours, and cannot see them, until, and in so far as, he has already learned to see objects. He does not hear tones until he has learned to hear voices and footsteps . . . the development of meaning is one side, the generation of qualitative distinctness is the other side, of one and the same process of differentiation and integration." It is not therefore true that the baby's world can be represented as a kaleidoscopic confusion—"it is rather a world of imperative urgencies and impulsions."] **G. E. Howard.** 'Hellenic Civilisation.' [A laudatory notice of a book by G. W. Botsford and E. G. Sihler.]

"Scientia" (Rivista di Scienza). Series ii. Vol. xix. No. 6. June, 1916. **S. Pincherle.** 'Il calcolo delle probabilità e l'intuizione.' [The world to which we apply the science of number or extension is not the complex world in which we live, but is a world which is only a schematic representation of the real, and the causes considered in it reduce to a small number that dominate the whole, while the others are deliberately left on one side. In mechanics and physics the dominant causes are, so to speak, imposed by the very nature of things; but in sciences such as political economy, medicine, meteorology, and certain parts of biology, this selection of causes is not thus imposed, and a subjective element comes in. Sometimes we cannot imitate mechanics and

physics by reducing causes to a small number of predominating ones; and then we do as a doctor practised in diagnosis or an old sailor learned in weather-lore, and use, besides logical deductions or intuitive inductions from cause to effect, numerous observations of which the traces hav been preserved in our memories. In such cases, then, the deductive method must be supplemented by the statistical method, which is closely connected with the calculus of probabilities. This calculus applies to effects about the causes of which we are ignorant; and on this ignorance of causes is founded the definition of probability, where it is translated into a principle of equivalence between the various possible causes (principle of the symmetry of causes). 'In the elementary definition of probability: "If, in a finite number of possibilities, certain of them bring about the realisation of an expected event, the probability of the event is given by the ratio of the number of favourable cases to the number of possible cases," there is implicitly contained the hypothesis of the non-existence of a dominant cause or of the symmetry of causes. If a contradiction arises in the reply to a question solved by the principles of the calculus of probabilities, this depends in general on the fact that we have neglected to notice that the nature of the question does not admit of a symmetry of causes of the kind mentioned.' Modern researches have been occupied with cases of an infinite number (in the Cantorian seuse) of possibilities, and the above elementary definition thus has to be modified. A very interesting article, especially for those who hold that the introduction of probability into the formulation of the principle of induction (Russell) is topsy-turvy.] **G. Bigourdan.** 'L'orgine et les progrès de l'astronomie, en relation avec la mesure du temps et avec le problème des longitudes.' [A rather slight article showing how the practical needs—which were also primitive—of measuring time and getting one's bearings at sea were the beginning of astronomy.] **W. M. Bayliss.** 'Surface phenomena in living structures.' ['If a muscle is set into activity by a stimulus and the energy of the contractile process is measured by the amount of heat produced when no external work is done, it is found that this energy is directly proportional to the *length* of the fibres during the time in which the contractile stress is developed. The fact that there is a difference between the energy produced when the fibres are allowed to shorten and that produced when no change of length occurs shows at once that the *volume* of the muscle has no influence on the process, because there is no change in the volume. It is clear, therefore, that the amount of energy set free is proportional to the area of certain surfaces arranged in a longitudinal direction in the muscle.' Technical. 'We may conclude from the short review here presented that further study of the phenomena at phase boundaries will throw light on many problems as yet obscure. It would probably not be going too far to say that the peculiarities of those phenomena which we call "vital" are due to the fact that they are manifestations of interchange of energy between the phases of heterogeneous systems. It was Clerk Maxwell who compared the transactions of the material universe to mercantile operations in which so much credit is transferred from one place to another, energy being the representative of credit. There are many indications that it is just in this process of change of energy from one form to another that special degrees of activity are to be observed. Life is incessant change or transfer of energy, and a system of statical equilibrium is dead.'] **E. Ciccotti.** 'Dopo la guerra.' [Soberly eloquent, quite correct, and not very novel.] **J. G. K. Wicksell.** 'La guerre, la paix, et l'accroissement de la population.' [This war may really be 'the last war' through decrease of population.] Book Reviews. Review of Reviews. Chronicle. **French translations of articles in Italian and English. Index to vol. xix.**

X.—NOTES AND NEWS.

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MIND ASSOCIATION.

The Annual General Meeting of the Association will be held in Cambridge, on June 9. The same evening there will be a meeting jointly with the Aristotelian Society and the Cambridge Moral Science Club at which Prof. J. S. Mackenzie will read a paper on "The Conception of a Cosmos"; on the following day there will be a Symposium: "Are the Materials of Sense Affections of the Mind?" by Dr. G. E. Moore, Mr. W. E. Johnson, Prof. G. Dawes Hicks, Prof. J. A. Smith and Prof. James Ward.

MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY

I.—ON THE NATURE OF MEMORY-KNOWLEDGE.[1]

By J. B. Baillie.

The problem I wish to consider is the character of the contribution which memory makes to the series of judgments constituting human knowledge. For the purpose of the analysis we must presuppose the psychic development of the so-called memory-continuum, which is obviously a gradual and a complex product of psychic activity. We shall also regard as subordinate to our primary interest the various forms of our memory experience, recollection, reminiscence, remembrance and reverie, to name only the most familiar. Of still less importance from our point of view is the discussion of the question, in itself rather futile, whether the exercise of memory implies an innate or an acquired function of mental life. And we shall not deal with the psychic conditions of the memory process, retention, reproduction, persistence of images or ideas, and the like. Our problem is logical, not psychological, and starts from the assumption that the judgment 'I remember this or that' has a definite meaning and conveys a specific amount of knowledge, whatever be the psychic processes and conditions involved in the statement.

This judgment is specifically different from any other kind of knowledge, however closely allied to it certain other forms of knowledge, *e.g.* recognition, or again re-knowing, may be. The main point of difference is that in a memory-judgment

[1] This discussion does not claim to be an exhaustive treatment of a much neglected subject.

the object to which direct reference is made is always and solely the past. Every other judgment deals directly either with the present, the future, or, as in the case of abstract reasoning, has no time reference at all.[1]

The problem seems important on general grounds. It has been long held that the analysis of knowledge is concerned in the first instance, or even exclusively, with the judgments which refer to the world as it is about us in the living present and as it may be expected to be in the near or just remote future. So much has this view prevailed that some have taken judgments of perception to be prior both in time and logical importance to all other kinds and stages of knowledge. Emphasis on the present leads half unconsciously to over-emphasis on the knowledge which is peculiarly present knowledge,—*viz.* perception, and more particularly perception of the external world. This to some extent accounts for the place which discussion of the nature of external perception has occupied and still occupies in British philosophy. But it seems clear that unless this primary or exclusive emphasis on the judgments which concern the living present is the result of a reasoned theory, the assumption of their prior importance for knowledge can only be regarded as a prejudice or personal conviction. And when we observe that we are constantly referring to the larger and, as life proceeds, the ever-increasing domain of the past with as much relative assurance as we refer to our present situation, the acceptance of the judgments concerning the present as supplying our only starting point for the study of knowledge seems more than questionable. If, again, we admit that judgments concerning the past are at least *primâ facie* valid with those concerning the present, and are certainly distinct in form or kind from the latter—more especially if the judgments referring to the present are identified with external perception—then we are compelled to broaden the basis of our investigation into the nature of knowledge, and cannot accept any theory which regards judgments of external perception as the model still less as the standard of all true knowledge. It is of course obvious that a judgment regarding the past takes place in the present, as indeed do our judgments regarding the future. But a judgment in

[1] I take it for granted that the difference between a past object and a present object will be accepted as fundamental, and that knowledge in the present and knowledge about the present are also clearly distinguishable. Assuming these distinctions no one will confuse the analysis of an actual experience, *e.g.* a toothache, with the analysis of an experience known by memory, *e.g.* the toothache as located in the past.

the present is not necessarily a judgment of or referring to the present. If there is no distinction between these two statements then knowledge must always be an affair of the passing moment; and if this were true, there can be no escape from either solipsism or intellectual scepticism. That it cannot be true seems evident from the fact that we cannot even speak of a judgment in the present, much less of the present, without thereby distinguishing sharply between present and past, and thus giving some independent existence to the past and independent validity to judgments referring to the past. If this be granted, it is at least an assumption requiring special proof that judgments referring to the present have a more peculiar validity than those referring to the past. Such an assumption is certainly not made by common sense, which takes judgments regarding the past to be as much a basis of reasoning as judgments regarding the present; and the fallibility, which undoubtedly affects judgments regarding the past, can be equally found in the case of judgments regarding the present.

We start then from this position which common sense seems in point of fact to accept. Our questions regarding memory-judgments may be reduced to three. What is the specific nature of the object to which these judgments refer?: What is the character of these judgments?: and lastly we shall ask, What kind of value and certainty have these judgments?

We shall keep in view throughout the parallelism which seems to exist at many points, though certainly not at all points, between the judgments of memory and those of external perception. This amounts to no more than a common-sense admission that in some sense we may take the past to be as real as the present, and that a reference to our way or ways of knowing the present may by analogy assist us in an inquiry into our knowledge of the past.

The object of memory-judgments is summarily described as the past. But this is indefinite and requires analysis. We do not in memory know the mere flow of past time, but a specific point or part of the past. Past time as a whole, or the past as a whole, may, by contrast to memory-knowledge, be called an ideal construction, of which memory may supply some of the pieces but does not give the whole composition. It is the past of physics and cosmology. Nor do we pretend to know by memory the past which everyone understands and accepts in the same sense and with the same complex of events—the past of the historian or the evolutionist. This is built up without any reference to any specific individual's di-

rect experience; rather the aim of the historian is to get rid of the individual point of view as such, or only to make use of it as far as it corroborates or is corroborated by the experience and points of view of others. History in fact is to memory what a scientific statement is to a private opinion. The past to which memory refers is the individual's own past and nothing further: the past of history does not directly deal with that of any particular individual at all. But even the individual's own past is not in every sense the object of memory. Some of his past operates upon his life effectively but is unknown to memory. The residual influences of previous experience, the acquired habits of thought and action, the colour of previous feeling, and the complex texture of the previous events of his life, not to speak of the heritage of ancestry which links his individuality to a previous generation or generations,—all these are in a strict sense his past as an individual, but they are not the past he remembers. For they all have the characteristics of being at once indefinite in their operation, unconscious to his thought, and incapable of being identified by him as facts which he ascribes to himself or consciously places in some part of his previous experience. Only when he affirms what has been as his own, as being what it was because he made it so, does he form the judgment 'I remember this or that'. It is the past in this sense that we are concerned with when speaking of the object of memory.

It will be noted in passing that the reality or existence which we ascribe to the past of memory raises no difficulties which are not equally found when we speak of the reality of the past in any of the other senses. Whatever meaning the reality of the past of history or physics or cosmology may have, we must be equally justified in describing the past of memory as real: for the latter is only a particular kind of past. We do regard the events of history as real and not fictitious creations of the human mind. It is true that the lower strata of a geological formation were in existence before the upper strata: it is true that the Romans occupied Britain before the Normans appeared. And what is true implies a reference to reality. When we say the past is no longer real, all we mean is that the past is no longer present: and that is tautology. If we say the past was never real, because it no longer exists as it once was, we are either begging a serious question or perhaps talking nonsense. The reason why common sense regards the past as a reality is that reality is held to be continuous in its process, and all parts of that process are necessary to make reality what it

fully is. If this be denied there is no choice between illusion and solipsism,—if that be a choice at all. If change is not a character of the real, the word 'past' has literally no meaning. If change is real, then all the stages of change are states of reality whether they appear at one time or another, be past or present. What science and history do is to build up gradually by an effort of interpretation the connexion between the discrete parts or stages by which reality as a whole has gone through its process. That this interpretation refers to reality is never questioned and cannot be doubted without denying the fact of change. The same must apply to the past of memory. The changes through which the individual mind passes are as real as the individuality which passes through and holds together these changes. And it is the course or series of these changes which is referred to by the successive memory-judgments.

The general character of the object of memory is, then, individual experience as a process of changes which have occurred, to which we can consciously refer, and which we claim as peculiarly our own. The reality to which we ultimately refer in such judgments, the ultimate 'subject,' to use the familiar logical term, is our one individual experience, which is identical throughout the changes and which unites them all. Reality is everywhere individual, identity through diversity, whether the diversities appear simultaneously or successively. In our judgment of a present reality, its constituent elements are in general simultaneous; in memory-judgments the elements are always successive. The actual way in which these two factors (identity and change) of our individual experience are blended is that of continuity. This continuity of individual experience I take to be the essential nature of the specific object dealt with and referred to in memory-judgments. Every time I judge that this or that happened in my experience I am affirming the continuity of my individual experience, and point to certain parts of it which have made up its content. Behind continuity no doubt there lies the more ultimate fact of the activity of the individual life which has reacted on its environment and in so doing has built up its concrete reality. But with this point, which is rather metaphysical than logical, we are not here directly concerned. It is only after this activity has operated through a considerable variety of changes and has fused these changes together, that the continuity to which memory specifically refers is effectively secured and established.

The continuity in question is never abstract, but is filled

in with perfectly definite elements, each with a character of its own. Hence it is inaccurate to say that memory-judgments prove the fact of the continuity of the individual life, as if continuity were an abstract principle deducible from the acts of remembering. Memory-judgments are operations of the mind by which we express in the present our awareness of the continuity of our past with our present. In the same way it is equally inaccurate to say that memory assumes the fact of continuity of our experience. Memory-judgments no more assume the existence of their object than external perception assumes the existence of the world about us. The world about us, so far as perception goes, is just the object perceived: perception is one way in which the externally real becomes an object, *i.e.*, enters into the sphere of what we call our knowledge. Similarly continuity of our experience is primarily the object known in memory, and therefore is not postulated as being before it is known. What that continuity may be apart from memory, it is not for memory to consider, any more than it is the business of the acts of perception to decide what the world about us may be independent of our specific perception. In memory-judgments we become aware of the continuity of our individual experience; and this is almost a tautology; for being aware of our continuity is just what memory-judgments consist in.

We need not, however, maintain that only in memory-judgments do we become aware of our continuity. It seems certainly true that we do have to some degree—a degree varying from individual to individual and from time to time in the same individual—a kind of sense or feeling of our continuity, an indefinite and inarticulate mental state in which different factors co-operate and coalesce, and to which therefore we may assign the term 'feeling' of continuity. The more stable our individual mind, the more uniform its operations and responses to its environment, especially its emotional responses, the more likely are we to have a clear consciousness of this feeling of continuity. But while some might attach very great importance to this feeling in their consciousness of continuity, it does not conflict with but on the contrary may often support the memory-judgments. And in any case it does not take the place of memory, for its peculiar character lies just in being a general feeling [1] and not a judgment at all, which is articulate and definite in its reference to some part of our experience.[2]

While the object of memory, then, is the continuity of our

[1] Comparable to mere sensation in relation to judgments of perception.

[2] We shall refer to this again in the second stage of the analysis.

experience, memory-judgments always have a specific object as their content. This is selected by attention from the variety of content making up the continuity of our experience. This operation is closely analogous to what takes place in our perception of the external world. We do not perceive, say by sight, the whole region that is visible, but select a specific object in the *totum visible* and concentrate our attention on that: we perceive, in short, a visible object: the rest of the visible region lies round that with varying degrees of clearness and distinctness. We are aware there is no gap between what we do perceive and the remainder: but the reality of the visible world is focussed for the time being at a particular point, the object perceived. So in memory-judgments. We do not know by memory the whole continuity of our previous experience at once, but a particular part of it, which we, owing to our special interest in it for the time being, know as belonging to our experience. The fact that though thus selected, and therefore partially isolated, the object is still affirmed as part of our continuity often without our linking it to other adjacent objects in the series, shows how closely our continuity enters into the very life of our individuality. It might seem at first sight that to remember any bit of the past we should have to go through a succession of stages connecting the object remembered with what preceded and what followed. Sometimes we find we do this, but not always; and in principle it is not necessary, any more than it is necessary, in order to perceive an object in the external world, that we should perceive this object as being alongside many others. The conscious reference to other objects may be very indirect indeed, and hardly present to the mind. And indeed it would be paradoxical if it were always necessary to relate an object to other objects before the object perceived could actually be perceived; for then we should either have to do the same in the case of those other objects, and thus proceed *ad infinitum*, or else we should never perceive an object at all. We may be and often are so vividly aware of a particular object as not to perceive any other objects. They may be felt or sensed as being there; but that is not perception. So in the case of memory. The object remembered can be judged as having fallen within my experience without necessarily connecting it with a predecessor or successor. Indeed this is requisite in many operations of memory, when the quick recall of a specific object is for the time our sole interest in our past.[1]

[1] I admit that the implication of other objects in the continuity is a matter of degree: but the degree may vary from vague indefiniteness upwards.

And even when our interest in the past is not confined to a single selected object, but to a series of objects, as in the case of reverie where we dwell on the past for its own sake, our memory of these objects consists in a succession of discrete judgments, acts of remembering particular objects. Memory, in short, is not a blurred apprehension of the past, but an articulate judgment regarding its contents.

Such contents may be any aspect of psychic experience which has definitely engaged our activity for a time and so modified our individuality as a whole. Thus it is that we remember not only acts of will in the strict sense, but phases of feeling and emotion, and forms of knowledge. We remember that we paid our debts or failed to pay them, we can with the poetess "indulge in memory's rapturous pain," we can remember past apprehension or perception or judgments, we can even remember that we remembered, or again that we did not remember. Individuals differ from one another in the way and in the degree to which they can remember these different contents; some can remember past acts better than thoughts or feelings. But such variation is characteristic of all operations of consciousness, as we familiarly recognise in the "specialist's memory," or in describing one person as having a good verbal memory, another a memory for ideas, a third as having an auditory memory, a fourth a visual memory and so on.

While all these contents must belong to the past as continuous with our present it is not necessary that in all cases there should be a precise reference to a specific time. The past of course involves the element of time: but continuity with the present is the fundamental fact, not the continuity of a definite time series. This last is a highly abstract element with a uniform and invariable direction of its own. We partly build up the idea of this uninterrupted flow of time from our memory-judgments; the latter do not depend for their operation on the accurate reproduction of the abstractly uniform time series. All that we require for memory-judgments is that they should refer to the past as a continuity which runs into our present and is different from it.[1] Hence it is that we remember many things which we cannot place anywhere specifically in the time series, but which, we are sure, fell within our experience somewhere. Hence too we remember some facts accurately but not in their exact order, the order which they must have taken in the single time series. The

[1] It is interesting to note in confirmation of this point that each individual tends to have a memory series peculiar to himself: much indeed as each tends to estimate time in a way of his own.

time order is something over and above the content we remember. The remembrance in a certain order no doubt may help to give cogency and certainty to our judgment of each object remembered. But so far from this being regarded as a necessity for accurate memory of particular objects, we rather consider it a sign of a defective, or at least primitive, mind if an individual cannot be sure of a particular occurrence without going over the whole record of events which preceded, or if, when interrupted in the recital, he has to begin all over again. When we remember a verse of poetry, or a passage in a book, or a place we have seen, we do not generally, and certainly need not for accuracy, locate the object remembered at some specific time in our past life. Indeed for many objects remembered this may be altogether impossible, as *e.g.* when we have met the object remembered very often and it has thus become completely dissociated or detached from any specific time position. But we do locate the object in our past, as an object which has entered into our experience, and which we affirm to have some place in the continuity of our individual life. The time series of the past, then, is one thing, the content of the past is another: and the latter is the primary and ultimate object of memory, and is not in the first instance directly bound up with the former, so far at least as the precision of the object of memory-judgment is concerned.

There remains a last point of some importance. What distinguishes past from present, and where does the past to which memory refers begin? The operations of sense-perception form the primary region of the present, and with these are inseparably associated actual bodily movements of all kinds, whether of the body as a whole or of its various organs, and certain feelings characterised by novelty or freshness. The typical or standard judgment of the present, the judgment of external perception, combines these features. The sphere of free ideas or images is distinct from perception mainly through the absence in the former and the presence in the latter of organic movements. These free ideas and images may be of two kinds: those which are allied with incipient, unfamiliar, and arrested activity,—mainly bodily activity,—and those which are allied with consciously realised, or fulfilled activity which suggests no further movement of any kind. The former belong to what we call our future, the latter to what we call our past. Hence it is that all that belongs to our past invariably has the aspect of familiarity and of attainment, and is accepted without any attempt at alteration. Alteration pertains to the future, not the past. So

much is this the case that memory seems to reflect as in a still mirror an unchangeable realm of images or ideas. Whenever we seek to change what is presented to us, or see what is presented change before us, we know we are no longer in the region of memory pure and simple. Distinct from both perception and the free ideas allied with movement is the realm of concepts with which are allied no bodily movements of any kind: and hence we rightly regard these as not belonging in a real sense to the present, past or future of concrete experience, and as having no time qualification at all. Further than these distinctions which common sense uses to mark off the past from the present and both from the future, we do not require to go in our analysis here. We can, however, easily see how, even apart from abnormalities of experience, the border line between what we reproduce and what we imaginatively construct may in some cases be very fine, and how it is often very difficult in practice to determine whether we are actually remembering or merely imagining a part of our experience. These are often mixed up even in the case of people with good memories. But, however this may take place, the general principle holds good and is admitted: for we never seek to alter what memory supplies, and we always try to alter when imagination constructs. As a rule the sense of familiarity, the consciousness that our activity has once been fulfilled in a certain direction, increases or decreases as attention is concentrated on the object before us, and this is generally sufficient to make us aware whether we are remembering or imagining.

We come now to the next stage of the analysis—What sort of judgment is a memory-judgment? Round this point there has been much controversy. We shall not discuss the different theories. All the different views which have been put forward in connexion with our knowledge of objects of the external world, have played their part in the discussion of the object of memory, mainly because perception has been taken as the type of all knowledge and memory interpreted on the same lines as perception.

The difficulty in deciding the character of the judgment of memory seems to be largely due to the apparent absence in the case of the object of memory of many or most of those features of the environing world which supply the material of thought and the usual model of what we call an object. We are accustomed constantly to supplement our own apprehension of the world of objects about us by intercourse with our fellows, and this both acts as a check on our own particular apprehension and helps to give the object the quality of de-

tachment from the individual. In other words, social intercourse creates what we call universal or common experience, and this carries with it the consequence that the object of such experience is independent of any given individual, and is thus in a sense universal likewise. Hence universality of experience and objectivity have been by some thinkers literally identified. But when we are dealing with memory-knowledge, our object is altogether dependent on or at least directly bound up with our individual mind. No one can remember for us, or in the long run deny the validity of another's memory. We may correct our own memory by the help of others; but in the last resort the truth of our memory-judgments is final for ourselves. To surrender it absolutely is to give up the fact of the conscious continuity of our own individual life; and this we never do nor can do without loss of conscious individuality altogether. It would be like giving up our own emotions or private opinions or feelings which constitute so large a part of our distinctive individual existence. The object of memory does not transcend individual experience, and yet it is none the less an object on that account. For it transcends our conscious present, and that of itself is perhaps enough to constitute an object. But when to this is added the characteristic that the object of memory remains the same and is found to be the same after repeated changes in our individual experience and successive variations in our history, then it seems indeed absurd to deny to the object of memory the quality of objective reality which all matters of fact possess. The neglect of this wider significance of the term object is a serious defect in certain well-known theories of knowledge. It is overlooked that the repetition by an individual of his own experience is even in principle not really different from the process of constituting an object by intercourse between several minds, on which the sole stress is laid by these theories. In certain forms of knowledge of the higher order, *e.g.* some of the higher developments of science, the objects dealt with are not arrived at or experienced through intercourse with other minds of equal ability, still less with other minds of average capacity, but are known only to the investigator himself. His assurance of the truth of his knowledge is obtained simply by repeating his own experiences, retracing his course of reasoning and the like. There is therefore nothing unique in the character of the object of memory, when we say that its object never transcends individual experience, for the same is true of many other objects that fall within experience—feelings, ideas, and even certain objects of science.

Admitting this we have to ask in what way the object in the memory-judgment is apprehended? The judgment seems to consist in the ascription to oneself in the present of a part of the content falling within the continuity which connects past and present in the individual life. The judgment takes effect in the present; it refers to the past; and the identity or unity which holds these different elements (present and past state) together is the continuity of the individual. We may put it otherwise by saying that the reality underlying the judgment is the individual mind as a single unity; the memory-judgment makes this unity explicit in a special way, *viz.*, by an act which unites a part of its continuity which belongs to the past with another part which is in the present. In this sense it is perhaps correct to describe the memory-judgment (as Mr. Bradley does) "as an enlargement by ideal content of reality beyond the present";[1] though when this is given apparently as an alternative to the statement that "memory is an ideal construction of the past by which present reality is qualified," there are both difficulties and even obscurities in such a proposition. These, however, we need not pause to consider.

We may also say that the part of my continuity which is past is predicated or affirmed of the self which is in the present. My present, for purposes of this judgment, is not a particular feeling or idea or act: but simply the concrete state of the self for the time being, which is both feeling, idea and act, and is more especially centred in the perceptual world, which as we saw peculiarly constitutes our present state. The two factors in the judgment, subject and predicate, are not external to one another here any more than they are in other forms of judgment. They are aspects or elements in the one ultimate reality involved, namely, our continuity as a single individual mind. In language therefore we might even say that our present belongs to our past quite as much as our past belongs to our present, since both fall within the same continuity of the individual life.

In this act of judgment we do not derive the past state from the present by analysis, for the past is an element of our reality just as much as the present, and, for the reasons already given, is essentially different from it in quality. If in knowledge we can properly distinguish what is given from what is known, we should be bound to say that the object of memory is given to us in the same general sense that any other object can be said to be given. The psychical processes which in time precede and always condition the protrusion

[1] *Essays on Truth and Reality*, p. 354.

before our present consciousness of an object which we identify with ourselves in the act of memory-judgment, lie outside of our immediate attention, are governed by special laws of their own, are beyond our choice or power to alter, and to them and their product we submit. These are all characteristics of what we describe as "given to knowledge" and not created by its purpose. We have the same situation in the case of an object which we know by way of the perceptive judgment: for here certain psychical or psychophysical processes pursue their course beyond the pale of our knowledge, and only after these are completed do we by an act of selective attention operate in the form of a judgment of perception. I presume it is because of these processes antecedent to our conscious act of judgment that we speak both in practice and in theory of objects, or again elements, being "given" to us before knowledge can perform its work. With the psychical processes and conditions underlying the object of memory—persistence, retentiveness, association and the like—we are not concerned in the memory-judgment; for this presupposes their operation, and supervenes as an act of knowledge after that operation is carried through. In memory-judgment we say simply, 'I remember that fact,' *i.e.*, I predicate as true of me now a state or an event which has fallen within the continuity constituting my individual life. The fact as a fact cannot—so we insist in practice—be altered by me now, and is not altered by my judgment of it as belonging to my whole experience; any more than we can alter an object of perception. We simply accept it once it is there before us, and build or rebuild it into the structure of our lives by affirming it to be part of ourselves.

Hence the distinction between some free ideas or images as remembered and as new. We have to make our account with all as they enter the field of consciousness, and if we cannot regard any as having belonged to us before, we proceed to put them into a setting of another kind. What starts into existence a given fact remembered depends in the first instance on what we are doing in the present, on the content of our present state of mind. Our interest in this may awaken and, because of the continuity of our past with our present, does awaken into life other parts of our individual life through, *e.g.*, the process which we call association. But this interest is not all powerful in the situation where memory-judgments are formed. In many cases it does no more than exercise a very slight control over the course memory takes; in other cases the object of memory

shoots into prominence without any apparent control by our present interest at all; in other cases, again, our interest in the present may be so all-absorbing as to shut off the direct reference to the past altogether; while in still other cases, *e.g.*, those of reverie, we may surrender ourselves to the past so completely as to lose all interest in or even any vivid sense of what is present and wake up later 'with a start,' as we often say, to discover we are in the present and not living in the past after all. It is a mistake in fact and in principle therefore to ascribe to the interest in the present the whole of what we may know by memory-judgments: and the richer and the longer our past experience, the less does this interest in the present dominate memory-judgment. Our past is as real for us and as much our own as our present, and can be in itself quite as interesting, sometimes, indeed, even more interesting.

The judgment of memory has, again, a peculiarity not found in many other forms of knowledge. While it is true to say that in every judgment whatsoever the self of the individual is implied, or, as it has been put, the 'I think' underlies all knowledge, this reference to the self is not put forward in every case of judgment. We do not say usually 'I know' —or 'I think—the grass is green'; we say simply 'The grass is green'; the subject is looked upon as articulating its own content, as if we, as minds, need not be present at all. Hence in such a judgment, which is typical of an immense range of knowledge, we come to treat the self as something that can be left out of account. And for many purposes we can rightly leave it out of account, since a factor that is present in all cases makes no difference between the various cases; the constant is not so interesting as the variable and it is the variable which concerns us in the progress of knowledge.[1]

But in the case of memory this reference to the self is never implicit but always consciously explicit. The predicate is asserted solely of the self and by the self which owns the past state. Our judgment is not 'that took place,' but 'I remember it taking place'. When we refer to the past without this explicit reference to ourself, our statement is not a

[1] This elimination of the self, which is thus a matter of mere practical convenience has been absurdly construed by certain philosophers as if it implied that the self is not in fact operative in knowledge at all, that knowledge goes on of itself like a wound-up mechanism of thought, its owner, the artificer, merely looking on as it turns out its products—an absurdity which amounts to maintaining that because a principle is present everywhere, it is for that very reason not present anywhere at all

memory-judgment, but a judgment of history in the strict sense. For this reason memory-judgments presuppose, and indeed in a manner express consciousness of self. They are perhaps amongst our earliest realisations of self-consciousness. Psychologists are accustomed to ascribe self-consciousness to social experience almost exclusively: and doubtless this has much to do with its full development. But there has always seemed to me a *petitio principii* in the argument which explains self-consciousness solely by social intercourse, since social intercourse is only possible if there is first a self in some form which can enter into social relations with others. Memory-judgments make possible such a consciousness of self as precedes full social recognition, and seems an earlier stage in the development of full self-consciousness. It is because of this character that memory-judgments seem peculiarly confined to the higher human level of mind. Mr. Bradley has remarked that "the animal mind has neither past nor future," and regards memory as the dividing line between the animal and the human mind.[1] His statement is dogmatic but seems on the whole true, if we recognise that the supreme distinction between human and other mentality is to be found in consciousness of self, that all the peculiar characteristics of human experience—the pursuit of ideals and the construction of a social order responding to individual initiative—are traceable in the long run to this principle, and that memory is a specific way in which self-consciousness is realised and expressed.

We need not of course suppose that it is through memory-judgments that we create our self-identity—except in the wide sense that repeated operations of memory make more and more clear to us what our identity consists in or contains. Our self-identity is the basis of memory-judgments; these but make it explicit and express it in a specific way—by the act of judgment. But it is always myself that is remembered and by which, from another point of view, the memory-judgment is made, and for which alone it has significance. In this way memory has all the value for individual mind which we ascribe to feeling or emotion, in which some have sought to find the essence of the consciousness of individual selfhood. We do not, however, in fact depend solely on feeling for the consciousness of our distinctive individual existence; to have through memory a consciousness that certain states have been peculiarly our own gives quite as vivid a sense of individual existence as any feeling.

While it is true that memory-judgments cannot in the

[1] *Essays on Truth and Reality*, p. 356.

nature of the case arise till a highly complex process of mental development has taken place, it would be erroneous to suppose that the complexity of the process preceding their development implies a corresponding complexity in the acts of memory-judgment. The judgment is complex in the sense that it consists of distinct elements, one of which is the predicate which is attributed to the self of the present, and the other the subject, the self which consciously assigns to itself the state or event in the continuity of its past. But the image or idea which constitutes the predicate does not intervene between the subject and a kind of static past which is outside it. This does not hold true even of the idea which we predicate of external reality beyond the individual subject; for if so, reality would for ever remain unknown; it would be a thing in itself outside all knowledge. Still less can such a view hold of the reality dealt with in memory-judgments, for this reality is just the mind of the individual in its aspect of continuity. The idea or image predicated in the memory-judgment is precisely this aspect of continuity at a particular part of its entirety; for the idea has or is mental content and carries within it all that has entered into the activity of the self at the stage to which it refers. This idea does not arouse the feeling of pleasure or pain which was mine when the state first appeared, as if this pleasure or pain were something extra to its nature: it contains that feeling as part of its meaning. It does not again suggest the time at which the state appeared (when the element of time is involved in a memory-judgment), as if that time element were something added to the idea; the time element when involved is itself part of the meaning or content of the idea. And so of the other elements involved in the predicate of a memory-judgment.

The act which affirms 'I remember this or that' is ultimate for knowledge: its truth if derived could only be derived from a similar act involving exactly the same presuppositions. This of course does not necessarily imply the validity of every particular memory-judgment as it is made,[1] but merely that there is no way of knowing our individual past at all except by way of a memory-judgment, which, even if proved false, can only be proved so by another memory-judgment. There is nothing more remarkable in regarding memory-judgments as ultimate in this sense than in treating our judgments of the present as ultimate, *e.g.*, those of perception. These are often

[1] Otherwise a memory-judgment would be, like a mere psychic event, incapable of being described as true or false. When there is judgment in any form there is always liability to error.

mistaken, just as memory-judgments are at times in error. But in the long run we have no way of refuting the validity of a judgment of perception except by another judgment of perception. We cannot deduce the truth of a judgment of immediate perception from any other form of knowledge whatsoever, any more than we can derive the act of perceiving from any non-perceptual source of mentality. This seems beyond all dispute; it would be impossible to be aware of our present at all if this were untenable. But the past is qualitatively distinct from our present, though continuous with it as belonging to our one individual experience. If then we can take up the position that our knowledge of the present is direct and in the long run ultimate, there is nothing unique in affirming that our knowledge of the past is equally direct and ultimate. The view which maintains that our knowledge of the past must always be indirect seems due either to confusing our knowledge in the present with knowledge of the present, the latter being treated as primary; or to regarding our knowledge of a particular area of the past as derivable from our knowledge of the whole past, which is taken to be, and rightly taken to be, a construction of a very complex kind.[1] The former position need not be discussed after what has been said. The latter makes any construction of the whole past impossible; for we can only construct out of simpler elements, and these must be obtained directly. There is no source from which they can be secured except that of particular memory-judgments regarding particular areas or parts of our past.[2] When it is said therefore that an "immediate knowledge of the past is a miracle" (Bradley), or that "we can only know the past mediately through the present" (Hamilton), we must reply that the only miracle lies in the

[1] It may also be due to confusing an actual experience as we were consciously aware of it when it happened, *e.g.*, a toothache, with our present consciousness of it as a past event. Clearly a toothache as it is, is not a past event: and as a past event it is not an actual toothache. If to know the past event means to have the actual toothache there is no past at all, and therefore no knowledge of it as past is possible. The knowledge of it as past means *inter alia* that there is no actual toothache. The identification of these two objects makes the problem of memory-knowledge meaningless, and the doctrine that the present is immediately known and the past mediately, is a form of the theory of representative perception.

[2] That memory-judgments are not final in the sense of systematically complete may be admitted. Only the whole truth is final in this sense. This point will be considered later. They are merely final in the sense that they are an irreducible type of knowledge, which has its own peculiar conditions and makes its own peculiar contribution to the whole of knowledge.

long run in being able to remember at all, or that it would be a greater miracle to derive the past from a knowledge of the present than to know it directly.

It is no doubt true that beneath the discrete knowledge of past events which memory-judgments give, there lies a vague and diffused feeling of our continuity, which may even be psychically prior to the development of memory-judgment, and which certainly remains a factor in our mental life even after memory-judgments have arisen. But this does not make memory-judgments less direct or final as judgments. The relation indeed between this diffused feeling of continuity and the definiteness characteristic of the memory-judgment is closely analogous to that between the level of mere sensation and the act of perception. Perception is not different in degree of clearness or complication from sensation, it is different in kind, and involves a new and unique operation of the mind, that, namely, of selective synthesis; and only by this act can perception be regarded as a judgment conveying knowledge. Relatively to perception, mere sensation is not knowledge, but mere psychic existence. Similarly, in the case of memory: only through the specific judgment "I remember this or that" does the past become definitely known in the sense in which all knowledge implies articulate selection.

The various forms of memory-knowledge—expressed by the terms recollection, reverie, reminiscence, remembering—indicate that while our judgment of the past must in the long run be direct and final, memory-judgments can become interrelated. They can support and correct one another, form a body of knowledge about the past which may vary in range and connectedness in many ways and degrees of completeness; while again they can approach the past from different directions. In recollection, our judgment of the past refers to a specific event in its time order, and this implication of time sequence acts as a corrective and guide to the course taken by the judgments. In reverie, the mind is carried along in a sequence of memory-judgments in which one leads to another not in any logical order or even necessarily in their original temporal order, but merely as the mind might drift over the field of immediate perception at a given time and find each part interesting as it occurs. While the sequence in perception is determined by the juxtaposition of objects, it is determined in reverie by suggestion from point to point in the series of memories. In reminiscence, again, we have a connected temporal sequence of groups of events, each of which contains events

temporally associated, but as groups there is no continuous temporal connexion, and there is no rigorous control over the sequence of judgments by temporal continuity. In remembering there is not any necessary reference to time sequence at all. Facts and events are referred to the past, but the *tempo* of the events is not required or emphasised. Typical cases of this form of memory are found in the remembrance of a verse of poetry or an isolated fact of knowledge. Our hold over such parts of our experience is only to be secured by memory-judgments. In the more complicated cases, as, for example, in remembering a long poem, the memory-judgments in which each element is known are built into one another largely by the help of association on the one hand and a memory of the general structure of the whole piece remembered on the other. In this process undoubtedly judgment, of another kind than memory, and inference as well, have an important *rôle* to play.

We come to the last point—the value and certainty of memory-knowledge. That memory plays an important part in the composition and the progress of knowledge is evident. Even the simplest processes of scientific knowledge—those of observation—involve the operation of memory The mere transference to paper of what is seen through a microscope is only possible if we remember during the second stage what we have seen in the first. The highly complicated processes of constructing an elaborate theory are only carried through by a constant appeal to memory. But memory never gives organised knowledge, and never has the security of inference. The only kind of connexion of which it admits is the external connexion of mere collocation or mere sequence of independent judgments. We can never give a reason why certain separately remembered facts are put side by side. We can at best only assign a cause—that the facts referred to in the memory-judgments must have been created by the activity of the individual and thus form part of its continuity. Whenever we seek to show that the content of a judgment is such that it is essentially connected with another either by implication or extension of its identical substance, we have inference in the strict sense, and the beginning of a system of knowledge. Thus if I say that I must have had a ticket for the railway journey because the ticket collector entered the carriage as usual and allowed me to proceed on my journey without remark, this is inference pure and simple, based on the inherent connexion between the stages of the system constituting a railway journey. But if I say I remember buying the ticket and remember giving it up, we

have a mere arrangement of memory-judgments. None of these in particular guarantees its own *necessary* truth, for necessity implies inherent relation to a system. The more numerous the memory-judgments which relate to a single arrangement of events, the more likely each is to be absolutely true; for this tends to give the series of judgments that close connexion characteristic of a rational system. Hence it is that when the memory-judgments are numerous we almost involuntarily commingle or even confuse memory-sequence with inference, so much so that we even invent a link in the chain which memory cannot restore, and come to imagine as having happened what is not really remembered. Commonly the greater the breaks between the memory-judgments, or the fewer the memory-judgments, the less likely are we to fall into this confusion. And we are the more sure that we are remembering simply when we are aware that the several judgments stand isolated from one another.

Thus the truth of a memory-judgment is always a particular truth and has all the limitations in value which such truth possesses. It is unsupported, and unverified, sometimes even unverifiable; if we care to say so, it is altogether contingent. And no increase in the number of adjacent parts of the continuity of the past remembered will alter this character or turn it into a truth of a higher order—the truth characteristic of a systematically connected whole. We increase the probability of its truth, we lessen the weakness of its contingency, by the number of adjacent parts of the continuity we can remember; but that is all. This is inherent in the situation. Our memory-judgments are formed for and by individual minds as such, and have no source or support, *quâ* memory, except from the individual mind. Hence it is that we are always ready, or at least the highly socialised mind is ready, to admit the frailty of memory-judgments; and experience too painfully justifies the modesty of the confession. In many cases the best support for a particular memory-judgment is only to be found in the negative and weak assistance to be derived from not remembering anything that contradicts the judgment made. When such contradiction does occur, as when we think we remember that we took the three o'clock train and also think we remember being at our destination at two o'clock, we refuse to accept either deliverance and refuse to rely in this case on our memory at all. But this does not disturb our mental security, any more than when we make a mistake regarding the realm of perception and call a camellia a rose.

The judgment of memory is none the less true because disconnected from other judgments. Its truth is in this respect similar to that of judgments of perception, each of which, as far as it is mere perception, stands by itself as a judgment of a particular matter of fact. From the point of view of perception, there is no reply possible to Hume's statement that we can find no inherent connexion between two perceived facts or events; "the impulse of one billiard ball is attended with motion in the second; this is the whole that appears to the outward senses". But we do not question our judgment of each fact by itself. There is thus nothing peculiar in the truth of a memory-judgment which might raise doubts about admitting that disconnected judgments can convey a truth. Only in the interests of a theory, *e.g.*, that the whole, or completely systematic truth, can alone be called truth at all, is it possible to raise objections to the view that a memory-judgment conveys a truth. But such a theory either ignores the plain deliverances of knowledge, or else it must be consistent with the admission that isolated judgments convey truth. If the latter, then memory will be admitted to have at least a certain degree of truth. This is all in fact that memory-judgments claim to have. But such truth as they individually possess cannot in the long run be set aside except in the interest of other memory-judgments. Their truth cannot be cancelled or revised by any mind or collection of minds except that of the individual who exercises the act of memory-judgment. For they only hold for him and are, *quâ* memory, of no final value to anyone else, though for him they are supremely important. It is useless therefore to try to degrade the truth of memory-judgment by pointing out that it is so much lower than inference, and that in fact it requires to be revised in order to enter the realm of truth at all. Memory-judgments do not claim to rival the coherence of inferential truth, and it is a mere irrelevance to criticise memory-judgments from that point of view. The mind is not convinced that its memory-judgments are not true because it cannot give a reason for their inherent relation to other judgments, like in kind or different in kind: any more than the mind is convinced that it does not see a stone because it cannot give a reason for seeing the stone to be where it is. It is equally useless to say that memory-judgments cannot as such convey truth of their own because they are often in error, and therefore must have a criterion for their truth beyond their own deliverance. It is true that memory-judgments are often in error, but the correction of the error

quâ memory, can only be made by another appeal to memory: and this is generally what is done and is found satisfactory. Indeed how otherwise could we admit that memory had been mistaken except by convincing the mind by an appeal, a further appeal, to memory? If this is meaningless, how are we to account for the fact that perception is often mistaken and yet we correct an erroneous perception by another perception, thus admitting that perception as such is the final criterion in its own sphere? By no amount of conceptual deduction or inference can we create or destroy or even verify a truth derived from perceptual judgment. Perception is a level of knowledge for which no other process of knowledge can be, or provide, a substitute. The formulæ for gravitation will never give us the sense of weight; the laws of light will never supply us with the perception of colour. Each type or level of knowledge is a unique function of the mind operating under its own conditions and carrying within its own order its own warranty for its truth. And this holds for memory as for every other type of knowledge. The intermittent fallibility of memory therefore is no proof of the general incapacity of memory to supply truth, and is not to be overcome by appealing to truth of another order of knowledge.

The truth of a memory-judgment is thus in the first instance an isolated truth, capable no doubt of entering into a larger body of truth, but certain and valid as it stands. Because of its isolated character it provides in general the material for completer knowledge of reality; for this larger knowledge comes by way of inference, and thus passes out of the range of memory and equally out of the domain of merely individual experience. But it is only in certain cases that this advance in the knowledge of the past can be made. It appears, for instance, when the facts to which our memory refers have a wider significance than our own individual experience requires or possesses; for the facts referred to are often facts which have entered into other people's experience as well, and thus our knowledge of these facts may become common knowledge. Our judgments therefore may be a contribution to a common stock, and are on that account liable to and capable of correction by others. This process of criticism and correction prepares the way for the wider knowledge of them which appears as universal judgment or inference. But many facts of the past can never be so supplemented and corrected by the knowledge which others possess. They remain peculiarly and always within a single individual's cognisance. Here the truth of a memory-judgment must be accepted as final till it is contradicted.

The individual may indeed not merely feel convinced of its truth but support his conviction by additional memory-judgments. But he can never by memory have the security of inference or systematic truth, for this at once carries him beyond memory to the region of universal experience.

This investigation leads to certain important conclusions. If the field of memory-judgments is that described, no theory of knowledge can be adequate which takes its start primarily or solely from our knowledge of the external world. It is equally inadmissible to regard, as Mr. Bradley and others do, the knowledge of the present as providing the final criterion for the truth which knowledge supplies. This view, which seems to lead directly to scepticism, rests partly on a confusion between knowledge in the present, where certainly all knowledge takes place, and knowledge of the present, which as certainly all knowledge is not; and partly it rests on the prejudice, which at least requires justification and has received none, that the present has greater importance for knowledge because it seems more important for life and practice.

Again, if we thus broaden the basis of knowledge to include the past as well as the present, it is impossible to accept a theory of thought, or knowledge in general, which asserts, almost as a self-evident axiom, that knowledge is an ideal extension through judgment and inference of an immediate which is focussed in the present, or more narrowly still, in present sensation.[1]

Apart from other objections to this logical theory, it ignores altogether the peculiar character of our knowledge of ourselves which we have through direct acquaintance with our past.

The admission of the independent validity of memory-judgments will react on our theory of knowledge in another direction. It will tend to emphasise the essentially anthropocentric character of all our knowledge. For memory-knowledge as such finds its primary value in the individual life which it subserves: there is no external world to which such knowledge refers. If this be true of parts of knowledge, may not all knowledge find its significance simply within the purposive processes of the human mind, which at the best is but one kind of individual reality in the totality of the real world with which it stands in relation? Instead therefore of saying, in the language of a familiar school of logicians, that the

[1] Bosanquet, *Logic*, i., p. 90. "Judgment is primarily the intellectual act which extends a given perception by attaching the content of an idea to the fact presented in the perception."

world is sustained by a continuous effort of the intellect, may it not rather be that our intellect is sustained in its activity by the world of real beings which the individual mind encounters, and, in its active relation with which, carries through the processes of the intellect as one special way of realising its own supreme purpose of self-maintenance when face to face with other beings?

It also follows that objectivity cannot be interpreted solely in terms of universal, *i.e.*, common experience. There is an object which is only found in individual experience, and is not the less real though confined to the region of individual experience. We may indeed say that even here its essential character is universality, since the repetition by the individual of an experience the same in kind is equivalent to universality within the sphere of his experience. But this is certainly not universality in the sense accepted by current theories of logic. The latter is always socially constituted: a truth is held to be true, an object is regarded as an object, because it holds for a plurality of minds concurrently and not for an individual mind exclusively.

But if objectivity is accepted in this wider sense, then the current view that the final guarantee of truth is systematic connexion must also be modified or abandoned. Such a test is inseparably bound up with the doctrine of the interrelation of finite minds in a social system, ultimately perhaps the system of human minds as a whole, or humanity as an organised whole of mentality. If we extend the meaning of objectivity in the way described we must give a distinctive and independent place in the economy of knowledge to uniqueness of individual judgment as a mode in which truth is apprehended. Generalised, this implies the acceptance of intuition, in some sense, as an avenue to truth equally with, and yet independent of, reflective systematic connectedness or inference.

Finally, if we assign an independent place to intuition in the sphere of human experience, we cannot literally dissolve the individuality of the mind into a larger comprehensive universal mind, and regard the latter as 'taking up' or even fulfilling the whole purpose and nature of the former. The individual with his intuitions, as likewise with his emotions and even opinions, is an irreducible centre of mentality, with a reality and claims uniquely his own, whatever contribution he may make to the stock of common mental life which he shares with others. Whether the individual mind is to be assigned a larger or a subordinate or an equal reality with the universal mind is a problem which only a metaphysical inquiry can attempt to answer.

II.—THE MEANING OF "THE UNIVERSE" (2).

By Charles E. Hooper.

Without attempting a full résumé of the first part of this paper, which appeared in the April number of Mind, I may recall that it defined "the Universe" as meaning "the totality of real thought-objects considered under four related aspects"; these being (1) Space, in the geographical-astronomical, not the abstractly geometrical sense, (2) Time, in the historical-chronological sense, (3) Natural Characters, and (4) Natural Causation. The gist of the paper went to show the real particularity of Space, Time, and Causation; and hence, that the whole system of things and modes as classifiable is not the universe, but forms only one aspect of the universe, related to "the mind's prerogative of ideally taking the All to pieces, and counting the bits of the great puzzle side by side with the puzzle which has somehow put itself together". In so far as we can observe, record, and scientifically imagine the genetic and other actual relations, at particular times and places, of things and events, we are face to face with the going puzzle; though we necessarily sample it from the piecings together of subjective ideas which rational discourse affords.

It is with the pieces, or finite distinguishable contents, of the universe, in so far as they bear on our conception of the universe itself, that the following pages are concerned.

9. The Constituents of the Universe.

(*a*) *Contents which are not Constituents.*

In Clause 3 of the Definition (Section 2) the classifiable contents of the universe were provisionally enumerated as consisting in eight kinds: entities, materials, events, processes, features, qualities, magnitudes, and actual relations. This classification is intended to be exhaustive, but is very likely capable of improvement. All these categories except the two first are abstract modes of being which imply a con-

crete context. While all of them may be called contents of the universe (under the Natural Characters aspect) it is only entities which form true constituents of the universe (under the Space, Time, and Causal aspects). Materials themselves, or as such, are not constituents of reality; but only those "portions" of materials which appear as entities in given places at given times.

Before considering the fuller meaning of "entity," I will briefly allude to each of the other categories, taking the above list backwards. The meaning of actual relations was referred to in a footnote to Section 2. Qualities have been touched on in Section 7 as "predicable aspects," and contrasted with those actual relations of which we have visible evidence (as in seeing a person peeling an orange). Magnitudes and their ideal relations are the subject of mathematical definition; but, from the side of philosophy, it may be remarked that a magnitude can mean nothing real unless it pertains to some qualitative category; being, either, a certain number of natural units—entities or events—collectively regarded, or the measure, in conventional units, of some natural mode, as, for instance, some dimension or the volume or mass of an entity, the velocity or momentum of an entity in motion, the rate at which an entity grows, the degree of some physical condition (heat measured by the thermometer) or of some psychical quality (sense of heat experienced), or the measure of some actual relation, as lapse of time, distance in space, degree of attractive force, proportional variation of co-subsistent qualities.

(*b*) *Features distinguished from Parts and Qualities.*

Features are included in the above enumeration as meaning certain belongings, which seem to stand midway between physical parts and qualities proper. A physical part is in my view a subsidiary sort of entity; since it may become detached from the whole to which it belongs (as a branch from a tree) and will then possess an at least mechanical individuality of its own. A feature cannot, any more than a quality, be thus detached; but it is specially connected with some physical parts of a thing rather than with the whole thing. True features of the human body are such as the arm-pit or the facial angles between nose, cheek, and forehead, which latter are themselves called features, but are properly parts. A room is a feature rather than a part of the architectural structure called a house, and a tunnel a feature rather than a part of the ground through which it runs;

while marks and figures drawn upon solid surfaces by scratching or indentation are features in a similar sense. I should also say that a figure—for instance, an equilateral triangle—made by pen and ink or lead pencil on paper becomes a feature of the sheet, rather than a part of it, or an entity. The superimposed traces of material are no doubt entities, and so is the sheet itself an entity; but the fact of the sheet supporting the triangle, which could not hang together on its own account and yet does not belong to the texture of the paper, makes it a feature rather than a part. The same would of course apply to all written and printed matter and to all pictures and printed designs, when viewed in relation to the paper, canvas, or other fabric on which they appear. In many of these cases "features" have a high symbolic or aesthetic value which does not belong to the entities of which they are features. Finally it should be noted that the geometrical characters of real bodies, such as the perimeter of an individual body, any distinguishable surface or line between surfaces, and any point, ridge, corner, or other sort of solid angle, must rank as features and not as parts.

A complete perimeter, or the common termination of all the relatively external parts of a body, is the feature which confers mechanical singularity on the thing possessing it. In the case of rigid bodies the perimeter is some solid figure, no matter how irregular; but the perimeter of a flexible body, such as a rope or flag, may assume an infinite variety of figures, while the body's structure remains unaltered.

(*c*) *Process and Event.*

Next we come to the kinetic modes of reality, processes and events. As, in Space, an individual entity is something composed of materials and surrounded by other material things, but integral in itself, so, in Time, an event is something made up of processes and connected with antecedent and subsequent processes, but relatively complete in itself. Both individual entities and events have a sort of "form" which differentiates them from mere materials and mere processes respectively. *Any* motion or change objectively considered may be called a process. An event is a species of process whose differentia lies in the fact that it has a definite beginning and ending. By definite I do not mean necessarily abrupt. We may count the passing of day as an event lying between the exact moments of sunrise and sunset, or as one covering the waxing and waning periods of morning and evening twilight, which can only be vaguely defined:

but in any case the day does begin and does end. A simple illustration of an event is a single swing of a clock's pendulum from left to right. The pendulum's movement through any minor part of the arc traversed is process, not an event, and the continuity of its rhythmic motion to and fro is also process. If, however, we consider the fact of the clock having "gone," from a certain moment when the pendulum was started to another moment when it stopped, this was not merely an instance of process, but a prolonged sort of event.

(*d*) *Materials.*

Let us now turn to the meaning of materials; observing, in the first place, that no material is an entity or single thing, unless we count the ether as a material. This has actual continuity in Space and Time, and is thus internally one, though its outer limits, if there be any, transcend knowledge as do those of the universe itself. It is for the physicist, not the philosopher, to determine whether ether *is* a material, and also to prove or disprove the hypothesis that ponderable matter has somehow been built up out of ether. I would, however, point out that, if this hypothesis be correct, the modified ether which has become ponderable matter is none the less different in nature from the unmodified ether which remains ethereal. It is this ethereal ether which may possibly rank as one material and is also one entity. On the other hand, any one of the known chemical or physico-chemical materials is not a single entity. It is a class whose individual instances are "samples" instead of "specimens," being masses or traces, often called "portions," of the given material, which are of all shapes and dimensions, and are distributed irregularly throughout the universe. Thus water is not any one thing which can possibly act as a whole. The term connotes a certain physico-chemical composition, and should be understood to denote all things which have that composition; ocean, seas, rivers, ponds, rain-drops, the contents of vessels from which we drink or in which we wash, the watery parts of the fluids contained in living plants and animals. H_2O, which does not connote the liquid character of water, must of course denote a still greater variety of instances; those of ice, snow, vapour, and invisible steam, as well as those of water as such.

Materials, like entities, may be classified in species falling under genera, and the most specific sorts of material agree with species of plants and animals in that they cover a multitude of instances; only, in the case of a purely material

species, the instances have no characteristic external form, such as belongs to a species of organism.

(*c*) *Entities.*[1]

It now remains to describe more explicitly the nature of entities, as the true constituents of the universe; the things which have qualities of their own, enter into actual relations, and in or through which all processes and events take place. The ether is, as above indicated, an entity. Although it may be infinite in extent, it is limited internally by whatever may rank as ultimate particles of ponderable matter, and it has certain actual relations to these particles, little as we know of their precise character. The remaining constituents of the universe, or the strictly finite entities, are either molar bodies (including parts and systems of individual molar bodies) or molecules and ultra-molecular particles of which molar bodies are built up. These latter are now generally supposed to exist in three degrees of minuteness; molecules being systems of atoms, and atoms systems of electrons. How far and in what sense these several elements can properly rank as entities is again a question for the physicist, not for the philosopher, to decide. There are, however, some modern theorists who, in common with the ancient atomists, seem to assume that our most certain knowledge of matter relates to these, its intangible and invisible particles. They not only treat atoms (or electrons) as relatively explaining concrete things, but rather as *explaining them away;* making them mere transient phenomena, which are not at all what they appear to our senses, though the atom or electron is apparently exactly what appears to our minds! The fact of course is that by far the greater and most certain part of our knowledge of matter relates to molar bodies; mostly of visible, if not of tangible, dimensions; and, if we did not familiarly know many of these bodies in their actual relations, we should have no means of even imagining their atomic elements. While concrete things may be made up of atoms, the universe is made up not of atoms, as such, but of concrete things, as such. There is needed a certain qualification to this statement if it be assumed that certain detached non-molar units may be

[1] I am of course aware that some thinkers prefer to use this term in a much more abstract sense; namely, as applicable to anything which I should call a real thought-object, or content of the universe; but the term appears to me to be more serviceable in the sense indicated here.

travelling in space or ether beyond the earth's atmosphere and occasionally colliding or otherwise interacting. As to that I have no right to express an opinion, but, barring this hypothetical case, molecules do not act except in molar groups, and the true constituents of the universe are individual things (of which collective systems may be formed), masses, or volumes, each of which has some form of its own, no matter how irregular, indefinite, or fluctuating, and no matter how soon *it* may cease to exist, through what amounts to a complete metamorphosis of structure or a disintegration of most of its elements. Apart from ethereal medium and chemical or ultra-chemical particles the known universe is made up of the celestial bodies, nebulae and meteoric fragments, masses which form parts of the earth's crust or central regions, ocean, lakes, rivers and atmosphere, and definitely formed terrestrial bodies such as crystals, micro-organisms, plants, animals, men and the manifold products of human art and labour. In all these cases there are localised portions of either one or several varieties of physico-chemical material which have acquired some outward form and possibly some internal (other than molecular) structure; and, while the matter is of course a necessary factor, the form and structure are the more characteristic factors of any entity which is not a mere sample of material. The matter may be, not a solid portion, as in a pebble or crystal, but fluid portions undergoing constant transference, as in a river, in a wave of the sea, in a flame, or, less rapidly, in the body of a living organism.

(*f*) *Molar Entities Classified with Respect to Individuality.*

The classification of molar entities under such categories as celestial and terrestrial, solid, liquid, and gaseous, crystalline and organic, vegetable and animal, human and artificial, gives rise to special and recognised branches of science, such as astronomy, geography and geology, molar physics, mineralogy, botany, zoology, anthropology and technology. There are, however, certain other classes of molar entities which pertain rather to the logic of physical science as a whole than to any one or two departments. These appear to me to be six in number, as follows:—

(1) Entities which are properly *individual*, like a single planet, crystal, plant, animal, separated seed of a plant, bird's egg when laid, or detached house.

(2) Entities each of which is a *naturally differentiated part*,

such as a mountain, a continuous stratum of the earth's crust, any limb, organ, connected tissue or cell of a plant or animal, any plant or animal embryo, one wall of a house.[1]

(3) Entities which are *super-individual* and form systems such as the solar system, a flock of animals, a body of soldiers, a town (counting both houses and inhabitants), a nation or other partially localised and psychologically-united human group.[2]

(4) *Fragmentary* entities, like pieces of rock and pebbles, fallen leaves or branches of a tree, amputated limbs, fragments of pottery or torn clothing.

(5) Entities which are *amorphous*, being portions of mere material, fluid, or, if solid, approaching to the pulverised condition, as a segregation of fragments, having only some accidental form, like that conferred on a certain mass of coal by virtue of its being heaped in the corner of a cellar. Fluid bodies, in general, as being wholly or partially contained by solid bodies, or attached by gravitational or other force to solid bodies, come under this category.

(6) Entities which consist in *conventionally differentiated parts* of natural objects. These are parts of the internal substance of a body which may be more or less definitely located in mathematical imagination, though there is nothing in the structure of the body itself to differentiate them from other parts. Thus they have no degree of individuality, but it can hardly be said that they have no sort of entity. They are *there* all the time, and that they were there is practically proved when a plank is got out of a tree trunk, a slate out of a slate-quarry, or a glass of water out of the larger volume

[1] There are many sorts and degrees of part-differentiation. Thus, while an embryo may be a potentially perfect individual and while the place of potential separation between articulated limbs is clearly indicated, there is no similar indication to mark off a mountain from the underlying and surrounding parts of the earth, which may be much above sea-level. We may imagine the mountain's base as starting from the lowest level of some adjacent valley, but then it will have to be a slanting and variously curved base to meet higher levels on the same or other sides. A mountain does, however, agree with a limb in being a protruberant mass.

[2] Mere collocations or local collections of entities on the earth's surface are not in themselves entities, and do not merit to be called super-individual. Super-individuality involves some definite interaction or co-operative action on the part of the members of a system. Collocations themselves may be heterogeneous groups such as are given in any ordinary field of vision, or naturally segregated groups, like a wood. The last can hardly be called super-individual. If the trees composing it have any common action, that is of very minor importance, only tending to certain atmospheric and climatic effects.

held in a jug. The mathematical imagination, which locates parts not naturally differentiated, often does so with reference to natural features, as when we think of some part of a crystal adjacent to one of the facets, or of the lower half of a walking-stick.

Now it is evident that part-entities (classes 2 and 6) are contained belongings of some of the other classes, and this leaves us with four types; namely, individual, super-individual, fragmentary, and amorphous entities. An entity belonging to any one of these four types may be called *integral*, in the sense that it is either a teleological whole, whose parts or members co-operate towards a common end (in which case it need not be a mechanical unit) or a mechanical whole whose particles are held together, while they form a body distinct and separable from surrounding and supporting bodies. Fragments and amorphous bodies are mechanical, though quite the reverse of teleological, wholes.

It is clear that fragmentary entities can be accounted for as due to some disintegration of properly individual entities, though they may themselves be highly individualised in form, as are most plucked flowers and fruits. Fragments pass into the category of amorphous entities when they themselves disintegrate into particles which retain no structural features indicative of the type of body from which they came.

Now the cosmic fact which chiefly interests us, and which brings an intelligible or at least imaginable order into what might otherwise appear as a chaos of chemicals is the evolution of individual and super-individual entities.

Super-individuality is cosmologically illustrated in the solar system; biologically, in the animal family and herd or other gregarious group; sociologically, in the tribe, nation, federation of nations, and in all political, industrial, religious and cultural groups of human beings. It is a factor of supreme importance to the human microcosm. As, however, we are now discussing entities from the objective point of view, and as those which are super-individual are always fundamentally composed of individuals, it is of the character and types of individuality that something more must be said.

That which primarily differentiates any individual from any amorphous or fragmentary entity is that the individual possesses some complete and characteristic external form, with or without a characteristic internal structure of its own. The form in question is not necessarily a particular figure; it is simply a particular intact perimeter. It is only in the case of a rigid individual body that this perimeter is an instance of some particular geometrical solid. In the case of

a flexible body it may assume many different configurations or attitudes, but can generally be restored to some characteristic figure, as that of a flag which is fully displayed or that of a soldier standing at attention. In the further case of a growing organism (which may be subject to such great changes, internal and external, as take place when, for instance, the individual insect passes through the successive stages of egg, lava, pupa, and imago) there is a characteristic succession of figures, the earlier of which can never be resumed by the same individual.

That which, in the second place, differentiates the individual from the fragmentary or amorphous entity is that its modes of action (or, if an artificial object, its usable qualities) are conditioned by its characteristic form or structure rather than by the particular physico-chemical composition which it also possesses. The irregular forms of fragments and amorphous bodies do of course determine some of their mechanical relations, but do not determine them on any uniform and characteristic lines. It is otherwise with most properly individual entities, whether artificial or natural. A billiard ball, propelled over a level surface, rolls in a straight line, and it does this, not because it is made of ivory, but because it is accurately shaped as a sphere. Balls of a hundred different substances would roll just as well. Then, turning to the organic sphere, although the specific chemical composition of protoplasm is indeed essential to the living individual, that composition is common to worm and man; so that whatever constitutes the superiority of the more highly developed types of life depends upon form and structure rather than upon mere matter.

Taking the mode of production of individuality and the relation of such mode to human agency as a guide to its general significance, we may note that there are, broadly speaking, three known ways in which individual entities are produced: (*a*) through some sort of natural evolution, unassisted by human intelligence; (*b*) through natural (chiefly) organic evolution, modified by human forethought, selection, and care, and (*c*) through human processes of manufacture.

The last mode of production, though of course fundamentally conditioned by natural law, is at the same time the most patently and potently conditioned by human intelligence. Ships, buildings, machines, and the great majority of manufactured articles, are given by man certain preconceived specific forms and structures, serving specific purposes.

Under the intermediate mode of production (*b*) we must class the reproduction of the human species itself in civilised communities, and especially where eugenic ideals have influence; also the breeding of animals and cultivation of plants which are humanly valued. In the former case individuals are recognised as potential personalities and generally treated (or so Kant would treat them, though his modern countrymen appear to be of a different mind) as ends in themselves. In the latter cases multitudes of individuals are in fact produced, but (except in rare cases, like that of the racehorse) the individual is not regarded. It is treated as a mere means to ulterior means; namely, to fragmentary and amorphous products (meat, flour, wool, flax, etc.) which finally serve us for food, clothing, and in other ways.

In primordial nature (*a*) there appear to be three types of (molar) individuality; detached crystals, organisms, and celestial bodies which are or may become worlds.

The assumption of rigid geometrical forms by crystals is a fact of much interest which awaits adequate explanation, but does not at present appear to confer on the crystal any practical advantage or efficiency which may not be shared by an amorphous lump of like material. On the other hand, the simplest individual organism is endowed with those tendencies to self-movement, assimilation of nutriment with rejection of injurious or useless matter, and reproduction of its species, out of which arise the immense variety of structures and functions of plant and animal life.

There cannot be anything more individual than an individual organism, however simple in type; but there are all degrees of complexity and co-ordination of structure and function, increasing as we ascend in scientific imagination any well-marked branch of the biological tree. These added characters are correlative to an increasing variety of contingently causal relations between the individual and the entities forming its environment; a variety which gives increased value and meaning to individuality. This intensive potential relatedness of course reaches its highest known development in human beings, though, in their case, it is indissolubly connected with the influences of cultural ideas and knowledge.

According to the definition given above, individuality, as a category, seems to stand midway between singularity and idiosyncrasy, both of which are liable to be confused with it. Singularity may belong to an amorphous or fragmentary entity, to a part or collective group, to an event or actual quality or relation; in fact, to any singular instance of any universal type. On the other hand, idiosyncrasy, or indivi-

dual variation from type, belongs to certain individual and super-individual entities (and, in some sense, to certain complex events), but there are many individuals to which it does not belong. Consider the individualities of two newly-minted coins of the self-same value and issue. Each has its own matter and its own form, and these are absolutely distinct from the matter and form of the other; yet coins belong to a large genus of artificial entities, the individuals in each lowest species of which are moulded or otherwise manufactured on purpose to serve as exact counterparts of one another. They *are* practical counterparts, though there are no doubt atomic differences between their respective masses. The ordinary idea of an atom of some elementary material is of a minute body having a still more absolutely exact resemblance to its fellow atoms. Among entities which are at once molar and non-artificial, some, like rain-drops, may be also practically counterparts of one another, but the vast majority have appreciable variations; no two instances of the lowest recognised species are, when closely examined, found to be exactly alike. No two pebbles on a beach, no two magnified grains of sand, are so. Minute differences may be found between any two leaves of the same tree, and those between such complex objects as two full-grown trees of the same species must be always considerable. The physiognomical differences between human individuals of the same race, sex, and age are always noticeable—Comedies of Errors do not run to any serious lengths on the stage of life. Individual differences in intellectual, moral, and aesthetic psychology are still greater, and so, under present conditions, are those in fortune (wealth, education, etc.) which of course affect psychological characters. The differences between nations and their polities are in some respects more marked and in other respects less marked than those between individuals, but the total uniqueness of each nation is great and must of course be allowed for in any future attempt to combine national units in an organised body of Humanity. It is these idiosyncrasies added to individualities (or super-individualities) which make of nature something quite different from natural law.

In so far as any of the above or other entities vary, either for good or bad or in ways which are neither good nor bad, from the average type of the lowest species to which they belong, it is clear that the incidence of the same natural laws in different cases will give different results. Hence, whatever the validity of natural laws may be, actual evolution and dissolution are not processes which can be wholly

subsumed under law as such. Law can never be anything more than a relative explanation of concrete fact, in which every single entity plays its peculiar part. Entities are the only causes of which we have positive knowledge; for modes of energy such as heat and light, when affecting changes in entities, always proceed from other entities, and are propagated through ether, which is itself an entity, whether integral or infinite.

(*g*) *The Individuality of the Earth.*

Whatever the ultimate sources of life may be, certain conditions of inanimate terrestrial nature were clearly necessary to the evolution of life on our globe. It would, however, be more accurate to say that the globe itself, at a certain stage of *its* evolution, was the great conditioning thing which rendered possible the appearance, multiplication, competition, and progressive adaptations of individual organisms and tribes of organisms. Of worlds we may imagine many, but only one—only mother earth, with her ever-varying conditions of atmosphere and ocean, her unique springs and rivers, mountains and plains, her countries symbolised by the map and manifold local features familiar to this or that group of persons—do we know as a world. Here is the theatre of all the causation which especially concerns us, and, apart from the processes of heat, light, and other vibratory energies proceeding from that particular entity we call the sun, and propagated by that other particular entity we call the ether, terrestrial causation consists in the interactions of particular molar entities at particular places in or about the earth, or of their interaction, through gravitation, with the earth as a whole.

As the last condition applies equally to all terrestrial bodies, living or inanimate, the interactions which are specially concerned in biological and anthropological evolution are those of individual organisms or tribal groups either with other individual organisms or groups or with amorphous or fragmentary entities found in the earth's crust, or on its surface, or floating in or forming parts of its waters or atmosphere. These interactions are partly mechanical, or due to the motion, mass, and physical consistency of the entities concerned; partly physical-molecular, as in conduction or radiation of heat; partly chemical and especially organic-chemical, and, in the case of the higher animals and man, partly purposive and psycho-sociological.

(*h*) *The Earth as a Sphere of Natural Contingency.*

The causal relations above referred to are always of local incidence and take place between particular material entities; so that the most perfect knowledge of abstract natural laws could never explain the precise changes effected apart from the real concrete data. To estimate roughly what these are we must take into consideration, not only the idiosyncrasies of individuals before alluded to, but the heterogeneous distribution of given materials in the earth's crust and of given materials and organic species on its surface, the endless irregular shapes and endlessly different volumes of the amorphous and fragmentary bodies concerned, and the largely unpredictable character of the particular movements of individual animals and men from place to place.

All the minor integral entities which exist on the earth's surface are, mechanically speaking, independent centres of relationship, but those which are living organisms, those which are freely-moving animals, those which are adult and intelligent human individuals are, in progressive order, centres of more varied relationships and, consequently, of greater independence of action. Human freedom consists in the knowledge of some of these manifold contingencies, including the special knowledge of one's own ability to act or not to act in each of a great variety of ways. But *if* we act in some suggested way some consequence will necessarily ensue, or, if we do not act as suggested, something which we might prevent will certainly happen. Thus wisdom, without which freedom is a snare, consists mainly in the knowledge of *contingent necessities*, and, failing this, in that of natural probabilities. The abstract unconditional necessities of causal relationship (*e.g.* the fact of gravitation, as apart from possibilities such as those of accidentally falling or being accidentally crushed by that which falls) can have only a speculative interest.

(*i*) *Cosmic Contingencies.*

While the earth provides a sphere of contingent causation for the minor bodies which move on its surface, the movements of the known bodies of the solar system are clearly necessary and regular. In all probability, however, there is a true sphere of cosmic contingency. Certain bodies travelling in outer space may or may not reach points at which, if reached, they would be drawn into the solar entourage or into the sphere of some particular planet; or, stated another way about, such bodies may or may not exist at points

reached by the solar system in its movement through outer space.

(*k*) *Entities in Time.*

The working substance of the universe at a given moment of time is the whole set of connected entities occupying Space, when each is considered as the concrete totality, not only of its physico-chemical or ethereal particles, but of the properties and relations to surrounding things correlative to the fact of those particles having collectively assumed a particular form at a particular place. But the connected multitude of bodies is substantial only when we regard the present, in all its immensity, as the outcome of all which has been present at any and every moment of the past. Substance in abstraction from process would not *be* substance; and there can be no integral entity, at once finite and molar, apart from the complex event which begins with the entity integrating and must end in its dissolution. The order of the present is dependent no less on those entities whose place is wholly in the past than on those which continue to exist; for the former have not only yielded up their elements at particular places to enter into new combinations; they have, while they existed, interacted with other things, it may be in many different ways, and have thus inaugurated new lines of causal connexion, whether important or otherwise. Thus we cannot properly say of any long-since-disintegrated entity that it is unreal, or that it is not a constituent of the universe, though it is certainly non-existent in the present tense. Its reality lies wholly in the past, but the past bears up the present on what may be metaphorically, yet not altogether fancifully, described as its ever-lengthening columns. These are the multitude of causal sequences which are partly parallel and independent, though many of them converge and unite or separate and diverge, while in any case they are ceaselessly acting through coexisting entities in all parts of Space.

10. Conclusion: The Universe and Human Sentiment.

The foregoing discussion of the meaning of "the universe" has resolved itself into two parts: (1) a definition of the universe, as known under the four aspects of Space, Time, Nature, and Causation; (2) a brief study of the contents of the universe, and especially of those constituent entities, each of which has place, period and nature (or

real-logical intension) of its own, and in the local or relatively local interactions of which it is held that causation properly consists. There is no logical discrepancy between the former view of the universe as an essential unity of diverse but complimentary modes related to human thought and the latter view of it as a collective unity of relatively enduring, integrating, and disintegrating things. The modes envisaged are precisely such as imply and are implied by the reality of the things envisaged.

There is, however, an inevitable conflict of sentiment evoked by the idea of the universe, according as we regard it in the more abstract or the more concrete way. Its fundamental aspects, including many categories, or generic types and modes, which fall under the Natural-Character aspect are, so far as we can judge, eternal; but the majority of individual entities have transient existences and the most enduring of them are probably doomed to ultimate disintegration. It is now more than ever a question whether there are any atomic or ultra-atomic particles which are essentially indestructible. The ether would appear to be so: but ether without matter, or ether *plus* matter *minus* individually integrated objects would not constitute what we mean by a universe.

It is, then, in its abstract aspects that the universe appeals most strongly to our ingrained conservatism or ideal of permanent being; while the relatively transient character of all individual things, and especially that of the conscious human person (if we reject theories of immortality and reincarnation) makes us, by virtue of the same sentiment, rebels against the inevitable process of Time—the god we picture as a reaper whose all-where-reaching scythe is never at rest.

Moreover, while the universe, abstractly viewed, is either good or above good and evil, it cannot be maintained, even by the hardiest optimist, that all the constituents of the universe or all their modes of action are good.

If value attaches to life, as such, the temperately and complexly conditioned habitats which render life possible can be but as rare oases in the desert of ether diversified by cosmic conflagrations which we call nebulæ and stars; while the only one of these oases of which we have intimate knowledge is subject to cosmic accidents in which multitudes of living things are wiped out.

If value attaches rather to the survival of those forms of life which are mutually serviceable, we are confronted with the spectacle of "Nature red in tooth and claw," and with

the less obvious but (for us) more serious problem of parasitic organisms which prematurely destroy, often through agonising diseases, endless specimens of the higher types of life.

If value attaches to the survival and increase of the human race, or, as most of us would prefer to say, to that survival and increase, coupled with the growth of true civilisation and right human relationships, we stand aghast at the tragedy of personal egotisms, crimes, perversions and follies, and at the still greater tragedy of nations engaging in wholesale slaughter, and prostituting the highest developments of scientific knowledge to purposes of insane destruction.

Now on a strictly determinist hypothesis we must blame either the universe or its supposed Creator or First Cause for all the ills of terrestrial nature and all the sins and follies of mankind. If, however, as I incline to think, the process of universal causation is composed of many partially independent processes, emanating from partially independent entities, some of these processes being parallel and some converging and contingently meeting in the stream of Time, and if all life is living experiment and all human knowledge the product of conscious experiment in that sphere of contingent relationships provided by the earth's surface conditions, a very different attitude towards the universe becomes possible. Nature which is not Providence cannot be blamed for not playing the part of Providence. Life alone can be blamed for its failures in adaptation, and man alone for his failures in duty and forethought, which are adaptations to the more intensive environment which human culture creates. Organisms injurious to man are not to be blamed, but, so far as possible, destroyed. Earthquake, flood, etc., are not to be blamed, either in themselves or in their originating sources; but their ill effects are to be anticipated, avoided, or mitigated so far as may be. The materials and forces of inanimate nature are dangerous masters which man may and increasingly does convert into invaluable servants; but, in so doing, he observes the contingent necessities of natural law, and may claim to be obeying the universe itself in that causal aspect which science interprets.

Thus the great reality which seems to be above good and evil in itself becomes good to the intelligent will which learns to make of natural obstacles stepping stones to the disciplined purposes which surmount them; but surmount them only by calling in the aid of equally natural agencies. And the universe is good also to the speculative reason

which does not allow either the interests or the trials of *here* and *now* to eclipse the immense perspectives of *there* and *then*, or the high vision of those modes of being and relationship which always and everywhere subsist.

Praise and blame are alike irrelevant to the universe, yet we cannot but regard it with admiring wonder, akin to veneration. In one of its possibly numberless worlds, the race of man, the leaders and teachers of man, and the whole range of human values, positive and negative, have arisen. We know it sufficiently in scientific imagination to perceive the disproportion between it and our passing speculations about it, and yet to realise that we ourselves are in it and of it and subtly linked to its manifold reality. We worship it, not with vain adulation, but with undaunted inquiry; with progressive discovery which still consciously falls short of its goal. Every increment of science is some revelation of it; but to every revelation it opposes some still unlifted veil. Nevertheless certain broad features of it are, as I have in these pages endeavoured to show, familiar to what I have called scientific imagination—what may perhaps also be called scientific common sense. We contemplate the universe legitimately through combining such data as history, geography and geology, astronomy and molar physics afford; and, much as we have yet to learn of the ether and the ultra-microscopic constitution of matter and of protoplasm, no new knowledge in these directions can invalidate that perdurable world of relatively enduring though manifoldly changing concrete things which makes the whole immensity of Space and derives its being from the whole profundity of Time.

While the view of the universe here adopted is, broadly speaking, monistic, it is quite compatible with a relational dualism in the attempt to read significance into the All. In the first part of this essay I endeavoured to show that the universe presents a double duality of aspect; the coincidental aspects of Space and Time being joined to the coessential aspects of Character and Causation. It is in perceiving these distinctions, as well as in perceiving many of the multitudinous distinctions of natural character, as such, that human reason exercises its proper, or discriminative, function. A more intensive exercise of rational discrimination occurs as regards what is logically consistent or inconsistent and what scientifically true or erroneous and also (though here the discrimination is less purely cognitive) as regards what is ethically or politically good or bad, what aesthetically beautiful or base, and what practically efficacious

or futile. Whether we shall ever be able to trace, or whether a reasonable faith is entitled to suppose, some great orthogenic principle or soul of the universe which discriminated through biological adaptations and perhaps even through certain prior cosmic adaptations before human reason came on the scene are questions which I must leave unanswered.

Suffice it to indicate that there is no intention on my part to close the doors of speculation on the universe, even were such a feat possible. Philosophy may, and both science and poetry in their respective ways no doubt *will* tell us yet more intimately what the universe is; but, without prejudice to any further developments of knowledge and feeling, I have here set down what, for me, the universe *at least* is.

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III.—WHAT IS A PERSON?

(*The Cornerstone of Ethics.*)

By W. M. Thorburn.

Canon Sanday has justly complained, on page 8 of his recent pamphlet: *Personality in Christianity and in Ourselves* (1911): "I cannot ascertain that, even among professed philosophers, there is any generally accepted doctrine of Personality. A German friend, whom I can implicitly trust, tells me that there is no monograph on the subject in German." His own contribution on (p. 13): "Personality is Spirit. But Spirit as such is indescribable": cannot be regarded as very helpful. To make Person a mere synonym of Spirit, would be a wanton waste of an indispensable word with a long distinctive history. Nor do we get any further light from the speculation on pp. 153-157 of his *Christologies Ancient and Modern* (1910), about decomposing "the conception of personality": which Mansel in his *Prolegomena Logica* (139 and 313) has declared to be ultimate, indefinable, and possibly intuitive.[1] This despairing doctrine (of Mansel) was accepted in Dr. Illingworth's otherwise rather cloudy *Personality Human and Divine*, Lecture II. But not in Canon Sanday's *Life of Christ in Recent Research* (1907), (pp. 251-268); where he demurs to the fanciful elaborate analysis of Personality, as "Reason, Will, and Love": in Dr. Moberly's *Atonement and Personality*, ch. ix., pp. 219 ff.

(*b*) Some light is thrown on the causes of futility in such writers as Moberly and Illingworth, by the acute remarks of Canon Bigg, in his *Christian Platonists of Alexandria*, Lecture IV., p. 171 (n. 2): "Psychology again is for another reason an exceedingly difficult subject for a Christian, because

[1] "In every act of Consciousness the ultimate object is an *individual*": *Pro. Log.* 11. See also Mansel's Bampton Lectures on *The Limits of Religious Thought*, III., 83 ff: "Personality, as we conceive it, is essentially a limitation and a relation," p. 84.

he cannot isolate it, because he has to regard above all things the point of junction with metaphysics, and with the (traditional) metaphysics of Revelation. . . . The same difficulty attaches to the theory of Ethics": Similar candour will be found in De Wulf's *Mediæval Philosophy* (§ 281): "The scholastics drew from the history of philosophy, . . . to furnish reasons in defence of what was regarded as the true teaching. History was not studied for its own sake; and this accounts somewhat for the uncritical attitude of the scholastics, as regards the accurate determination of the historical fact, and for their anxiety to interpret texts in favour of their theses, even at the risk of misrepresenting the testimony invoked."

2. Bishop Butler never dealt fully with the problem; and the sound incidental statement, in his *Brief Dissertation on Personal Identity*: "Consciousness is inseparable from the idea of a person or intelligent being": is not made clearer by the following words: "but does not make Personality". These are put forward in opposition to Locke's opinion, as given in his *Human Understanding*: Book II., ch. xxvii., §§ 16, 17, 23. But, if Locke had expressly explained Consciousness as Actual *or Potential*, his position would have been impregnable. For Consciousness always implies Sensation of some sort: as Bain assumes in his chapter on Consciousness (in his *Emotions and Will*), and throughout *The Senses and the Intellect*. Hume, like Butler, spoke incidentally of a "Person or thinking being:" in his *Human Nature*, II., Part 2, § 1, p. 331. Kant spoke mistily of a Person as an "End-in-himself," and elsewhere loosely identified Personality with Freedom (of the Will). His nearest approach to a useful definition is this: "A person is the subject whose actions are capable of Imputation".[2] But this formula is little more than Forensic in its implications; and would exclude infants, idiots, Constitutional Kings, and Consulting Counsel. Fichte shows no advance upon Kant's futility, in saying: "The rational being posits itself as a rational individual, or, as we shall say hereafter, as a person, only by ascribing exclusively to itself a sphere for its freedom".[3] In Paulsen's *System of Ethics*, Personality is mentioned only once (on p. 468); and merely as a synonym of Free Will. Lotze is even mistier than Kant. To say, as he does in his *Mikrokosmos* (IX., ch. iv., § 10): "Selfhood is the essence

[2] Kant: Introduction to the *Metaphysic of Ethics*, iv., p. 279 in Abbott's Translation, or p. 172 in Semple's.

[3] Fichte: *Science of Rights*, Book II., § 5, p. 87 in English.

of all Personality": [4] is only to juggle with two incomprehensibles, put forward as mutual explanations. "Self has no definite meaning," says F. H. Bradley, in *Appearance and Reality*, p. 186 (second edition), and on p. 532: "For me a person is finite, or is meaningless. . . . Most of those who insist on what they call *The Personality of God* are intellectually dishonest. They desire one conclusion, and, to reach it, they argue for another." And Andrew Seth allows in *Hegelianism and Personality* (p. 4): "As regards the nature of Self or Spiritual Principle . . . the candid reader of Green is forced to admit that everything is left vague."

(*b*) Hume, Comte, Bain, Spencer, Martineau, Henry Sidgwick, Bergson, and even William James; although they have a good deal to say about Self; have made no serious attempt to answer our thorny question. Yet James [5] does not seem to have undervalued its importance, in view of what he says in his *Psychology*, his *Will to Believe*, and his *Varieties of Religious Experience*. The nearest modern approach to Canon Sanday's *desideratum*, is made in Canon Rashdall's brief contribution to Sturt's *Personal Idealism* (1902). His Person is: "a conscious, permanent, self-distinguishing, individual, active being" (p. 372). His enlightenment is further shown, in declaring Personality to be (like every other quality) an affair of degree, and possibly inherent in every animal (p. 374). But towards the close (on p. 391) his traditional prepossessions are apparent in the speculationsion the "Self-Limitation of God": a theologian's juggle, which must go into the same category with Kant's

[4] Lotze's phrase will be found on p. 687 of vol. ii. in the English translation of his *Microcosmus*. That very wordy and professedly comprehensive work ignores the cardinal matterof Personality, except in a futile and mostly irrelevant chapter on the Personality of God. Hume likewise bracketed Self and Person, but in a casual, if not contemptuous manner: *e.g.*, *H.N.*, I., p. 4, § 2; and II., p. 1, § 5. He regarded both, like Personal Identity, as mere figments of the human imagination. See *H.N.*, p. 4, § 6, pp. 251-259. In his later work on the *Principles of Morality* (s. 1), he treats Personality more seriously: founding his enquiry on an analysis of *Personal Merit*.

[5] "The only complete category of our thinking . . . is the category of Personality, every other category being one of the abstract elements of that:" *Will to Believe*, 327. "In the world of Religion," Personality is "the one fundamental fact": *Religious Experience*, 491. Personal Consciousness: "Its meaning we know so long as no one asks us to define it, but to give an accurate account of it is the most difficult of philosophic tasks": *Principles of Psychology*, I. 225. Compare H. Spencer: *First Principles*, § 20: "The Personality of which each one is conscious . . . is yet a thing which cannot be truly known at all, knowledge of it being forbidden by the very nature of thought".

"Duty to Self,"[6] Spinoza's "Intellectual Love," and the Augustinian Myth of Self-Murder. To confer validity on a contradiction-in-terms: "Deus non posset": as Ockham intrepidly declared in his *S. T. Logic*, i. 15, And: "Non potest Deus naturas rerum mutare": reaffirmed Francis de Vittoria (†1546), the Father of Salamancan Neo-Scholastic Theology, and the Grandfather of International "Law": *Relectiones Theologicae*, x. (De Homicidio), § 6. There is more history, and an altogether greater variety of matter, in William Wallace's posthumous essay on *Person and Personality* (1898), than is afforded by Canon Rashdall. And it begins well with a "common definition" of Person, as "the subject of rights". But it rambles and fades away into Kantian unreality.

3. Lack of Physical knowledge is one great cause, and lack of Juridical knowledge a still greater cause, of the vague and vacuous irrationality generally shown in the use of the words Person and Personality, by modern Moral Philosophers. Extreme instances of recent date are furnished by Richmond's *Essay on Personality* (1900): and Canon Holland's chapter on Property and Personality, in *Property: its Duties and Rights* (1913). It is curious, that the former piece of Turkey-carpet Philosophy (as Macaulay might have called it); though written from the traditional standpoint, in the most arbitrary spirit of the narrowest and most abstract Tommygreenery; incautiously propounds a definition of Personality, whose necessary implications would fill the framer with horror. Personality, he says on p. 21, "is capacity of fellowship". But there can be no fellowship without sensibility. Automata cannot be fellows. Nor could purely intellectual beings: if such beings were possible. And no fact is better established, than the fellowship of ants with ants, and bees with bees. Therefore they are Persons.

(*b*) Like other Man-trumpeting disciples of Green and Caird, these writers are obsessed by an unholy craving to make out Personality as something uniquely and mysteriously magnificent: bracketing every man with God, and impiously degrading the rest of His mundane children. Another characteristic is a very sloppy and fumbling way of dealing with the all-pervading fact of Relativity in thought. Every concept indeed supposes two individual substances, but two are

[6] "From the very notion of duty, it is impossible that I could owe myself anything": *Principles of Moral Science* (1910), p. 48; by W. Macdonald, D.D., of Maynooth.

enough. Personality of course is Relative: as even Boethius[7] understood (*De Trinitate*, 5 and 6). But that is no peculiarity. Redness and Roughness, Loudness and Bitterness, and every other Qualitative Abstraction are likewise Relative. Personality is the Quality of being a Person; and every quality is or implies a relation, although in Logic the two are distinguished. "We think in Relations": as Herbert Spencer was always saying (*e.g.* in *F.P.*, § 47); and we cannot think otherwise. Bain was even more emphatic: "We know only Relations": he said in his *Emotions and Will* (Consciousness, § 24). He had already declared (in § 11) that Relation is: "the widest term in our vocabulary". And, "Is not *all* our knowledge relative"? said Hamilton, commenting on Reid's *Active Powers*, Essay I., p. 513.

4. Everybody fairly grounded in Jurisprudence will instinctively think of a Person, as a potential subject of wrongs and corresponding rights. He will not, however, dispute John Austin's clear pronouncement: "Mere legal persons (*Personae Juris*) are persons by a figment, and for the sake of brevity in discourse. All rights reside in, and all duties are incumbent upon, physical or natural Persons".[8] And, if he goes behind the legal to a moral conception, he can hardly fail to see, that Ethical as well as Physical Personality is founded on capacity of feeling pain of body or mind. For, without such capacity (present or potential), no wrong is possible, and consequently no right; so far as the *Propositus* is concerned. As Bentham pungently said, in his, *Principles of Morals and Legislation* (chap. xviii., n.); "The question is not, *Can they reason?* or *Can they talk?* but *Can they suffer?*" A Moral Person therefore is first of all a sensitive being; a Feeling lump of Life; and his Personality is not destroyed by sleep, stupour, catalepsy, or anæsthesia. In Scholastic language; *Personalitas est Potentia Sensitiva.* Also: *Persona Naturalis est Suppositum Sensitivum.* And: *Omne Suppositum Sensitivum est Persona Moralis.*

(*b*) The philosophic student of "Natural" Science will take the same view as the scientific jurisprudent. To his mind a Poodle is a Person, a Parrot is a Person, a Pollywog

[7] "Substantia continet unitatem, relatio multiplicet Trinitatem": *De Trin.*, 6.

[8] Austin's *Lectures on Jurisprudence*, XII., p. 364 of vol. i. Compare Rudolf Sohm: *Institutes of Roman Law*, sect. 37 (n. 2): "Positive Law finds among its data, but one kind of Personality, and that is the personality of human beings, which personality is the postulate and source of all legal development". On the history of Theological and Jural Personality, see Canon Bigg's *Christian Platonists of Alexandria*, v., pp. 202-206.

is a Person; even a Potato-beetle is a Person: in so far at least, that it is sinful to throw him into the fire. For, all Pain, not merited as a punishment, is an Evil; and every Evil, when caused by an intelligent agent, is a Wrong; and every Wrong is a Sin, because it pains the Divine Governor in His Sense of Harmony and Perfection. But the narrow blatant "Unlettered Physicist,"[9] of the Schaefer-Lankester type, generally borrows his notion of Personality from popular anthropolatreian Theology: especially if he be a Vivisector hunting for a cloak of high moral humbug. He uses Person as equivalent to Human Being: tolerating an analogical extension to Invisible Spirits, on the part of his most useful allies. Dr. J. S. Haldane's *Mechanism Life and Personality*[10] (1913) indeed shows a wider range and outlook. But some self-contradictory sentences like: "In losing his individual personality in the wider personal life he realises his true personality" (p. 127): might have come straight from the cranial haggispock of T. H. Green himself. A General Person is like Hegel's Universal Individual, impossible as well as incomprehensible. "Nusquam in universalibus persona dici potest, sed in singularibus tantum atque individuis": said Boethius: *De Persona*, 2; and in this he was followed by all the Schoolmen. "Individuatio autem conveniens humanæ naturæ est personalitas": said Thomas Aquinas: *Contra Gentiles* iv., 41. "Individuum aliquid et proprium sonat vox persona": sums up Petavius, in his *De Trinitate*, IV., c. 11 § 8 (Index-Summary). "Every object of sense, of memory, or of consciousness is an individual object:" and "every creature which God has made, in the heavens above, or in the earth beneath, or in the

[9] Oxford men owe this happy phrase to Mr. T. C. Snow of St. John's.

[10] Compare Dr. Haldane's pp. 127 and 139, with Canon Holland's pp. 184-187, in *Property: its Duties and Rights* (1913). For a searchlight on Green's fatuity and futility, read Henry Sidgwick's masterly *Lectures on the Ethics of Green, Spencer and Martineau*. Consult also Dr. Cronin's recent (Scholastic-Aristotelian) *Science of Ethics* (Dublin, 1909), which deals with Green's Assumptions on pp. 434-438. In a note to p. 439, he maintains that the Transcendental distinction: "between the individual and the person is wholly groundless. . . . The Rational Self then is essentially individual." Like Hume and Locke, he does not clearly differentiate Self and Person; which are at least historically distinct. I would provisionally suggest the definite use of *Self* for the continuing Subject of Reflection; confining *Person* to the continuing Subject of Sensation. Why should either be wasted as a synonym? *Ego*, if treated as a modern cosmopolitan word, and not as a mere Latin equivalent of Self, might be used as a summary of Self and Person: a continuing Subject of mental Experience in the widest sense. Refer to note 19 *infra*, on the Logical use of *Person*.

waters under the earth, is an individual" : said Thomas Reid, the founder of the Scottish Philosophy of "Common Sense": *Intellectual Powers*, Essay V., ch. i., p. 389.

(*c*) To constitute and illustrate the Relation of Moral Personality, we do not need to invoke The Race, or The State, or The Nation, or The People, or Society, or The Community, or The Country, or any other elaborate metaphorical Person, as one of the *Supposita*. We do not want so much as a Football Team, nor even a family. We need nothing more than a small boy and a small dog. Each is a separate perceptible Centre of Sensation; and therefore a Person. Each can suffer pain, and each is therefore a potential subject of wrongs and consequent rights. When the boy tries to kick the dog, he is attempting a Wrong, and he therefore evokes a Right of biting in Self-Defence. If the kick be accomplished, it gives rise to a Right of Retaliating the Pain. But if, before the dog can bite his leg, he buys it off with a bun; then we have a case of Reparation, or Compensation offered and accepted. The dog has got his "boot," in the Old English sense, as well as the New American; and the balance of justice has been restored.

5. Dramatic and Forensic Persons were the only varieties distinctly known in the Ancient World. "*Persona* and our Person are not the same thing:" says Harnack, in his *History of Dogma* (iv., 117 in English). "Our modern conception of Personality": says Dean Inge of St. Paul's, in his *Personal Idealism* (1907), p. 33: "(was) alien even to Roman, much more to Greek thought. Neither the word, nor the idea of a Person has any existence in Greek, or in the theology of Greek-speaking Christians." A Person of the Trinity was originally apprehended by Tertullian[11] and

[11] Tertullian: *Adversus Praxeam*, 2, 4, 7, and 21. And Harnack's *History of Dogma*: vol. iv., pp. 121-123 in English; Part II., ch. i., App. *Trinitas* first occurs (*circa* A.D. 210) in the *De Pudicitia* of Tertullian, § 21. The nearest Greek equivalent, *Trias*, in a work of Theophilus of Antioch (*circa* A.D. 180): *Ad Autolycum*, II., 15. The first clear statement of a Trinitarian Creed was the *Ekthesis* of Origen's pupil, Gregory Thaumaturgus (*circa* A.D. 270). The great *De Fide* of Hilary (Pictaviensis), re-titled *De Trinitate* in the Middle Ages, is only an Anti-Arian manifesto (*circa* 360). As Canon Watson has pointed out in his *Introduction* (p. 62), the word: "*Trinity* is almost absent, and *Person* hardly more common". And, as to the Holy Spirit: "Hilary refuses with some emphasis . . . to call Him God," p. 84. *Trinitas* appears only twice: in cc. 22 and 36 of Book I. *Persona* occurs five or six times, but only once (V. 42) with an Athanasian savour. *Personalis* occurs in VII., 39. Servetus (1553) appeals to the authority of Hilary (*De Trin.*, II., c. 1), as well as Irenaeus and Tertullian, in his *Christianismi Restitutio* (*De Trin.*, I., p. 24): "Ecce verissimam trinitatem ex prisca doctrina!"

other Latins, as something more than Dramatic, but rather less than Forensic. He had functions, but not rights or duties. He might in short be described as a Phase (if not a Face) of Jehovah. And subsequent controversies arose mainly from successive efforts to fill out Tertullian's exiguous qualitative conception, with the nascent Moral Personality of Roman Stoic Natural Law. One rational individual substance clearly might sustain three distinct forms of *Status* or Character, as Paterfamilias, Consul, and Curator of a Prodigal: though he could not be at the same time three Physical or Ethical Persons. "Sustineo unus tres personas, mei, adversarii, Judicis:" said Cicero, in his *De Oratore* (118*b*). The Greeks, however, had no equivalent for the Latin Forensic Person. *Idiotes* and *Atomos* were their nearest words for Person and Individual. Their *Prosōpon* was purely Dramatic, till arbitrarily employed in the Sixth Century, by the Jurisprudent Theophilus, for translating *Persona* in the Constitutions and Compilations of Justinian.

(*b*) Theologically, *Prosōpon* first appears, probably as a translation of Tertullian's *Persona*, in the writings of the Semi-Montanist Hippolytus: *Contra Noetum* (*circa* 230), §§ 7 and 14. But he applies it only to the Father and the Son: the Holy Ghost being described as a *Dunamis* (Power) or *Oikonomia* (Function). It does not appear in the Original Nicene Creed of A.D. 325, nor in the revised Byzantine Creed of 381, which now passes under the older name. It was rejected by Athanasius, because it had been used by the Sabellians, though he tolerated the Latin *Persona*. He preferred *Hupostasis* to either, but without clearly distinguishing it from *Ousia*. Hefele says: *Councils*, i., 295, note: that the Nicene Creed uses *Ousia* and *Hupostasis* as identical. Harnack takes a similar view (*H.D.* IV., 34 and 81-85). And Canon Bigg declares in his *Christian Platonists of Alexandria*: second edition, Lecture V., pp. 202-205: that *Ousia* was Platonic; while *Hupostasis* was Stoic, much later, and very much less common. Both meant the *Idea*, or the vehicle of qualities. The prevailing Latin use was that given in Isidore's *Etymologiae*, VII. 4 (11). *Ousia* was translated *Natura* or *Essentia*, while *Hupostasis* might be either *Persona* or *Substantia*. Further enlightenment on all these words will be found in the Lectures of Dr. Hatch on *Greek Ideas in the Christian Church:* IX., 275-278. Petavius also has discussed them historically; in his *De Trinitate* (1647), IV., c. 2, § 5; and his *De Incarnatione* (1650), V., c. 7, § 8.

6. Austin, in his *Lectures on Jurisprudence* (XII., 357, 365), argues that the Roman Classical lawyers used *Persona* in two senses: originally a legal *Status*, or character: and later, the physical or fictitious subject of that *Status*. The physical perceptible Person was, he thinks, synonymous or coextensive with Human Being: even a Slave having a *Status*, though for some purposes classified as a Thing. Within the sphere of the *Jus Sacrum*, a slave "was from the outset, and within certain limits, acknowledged as a person": says Rudolf Sohm.[12] In other relations he might be called an "Equitable Person," though he could not be a *Persona Stricti Juris*. It is very noteworthy, however, that Justinian's *Digest* contains no Title on Persons, and that the word *Persona* is not explained in the Title *De Verborum Significatione* (L. 50, T. 16). No definition is given in the brief Title of the *Institutes* (I., 3), *De Jure Personarum*; nor in the Code (VI., 48), *De Incertis Personis*. For an example of the wider use of *Persona*, see Ulpian on Noxal Actions concerning Slaves, in the *Digest*, II., Title 9, Fr. 1.

(*b*) Cicero frequently used *Persona* for *Homo*, especially in his Epistles and Philosophical Works. As the Father of Latin Stoic Ethics, he was a prime mover in the analogical extension of Forensic Personality from the *Jus Civile* to the *Jus Naturale*. And from this early *Suppositum* of a potential subject of "Natural" Rights and Wrongs, the modern Spirit-Person of Moral Theology and Moral Philosophy has been developed: largely through Patristic and Scholastic speculations about the Trinity, the Angels, and the Anthropine *Anima Separata*. Hobbes, the intellectual ancestor of Austin in regard to Sovereignty and other ideas, thought it enough indeed (in his *Leviathan*, I., 16), to combine the old Dramatic and Forensic notions under the wider term, Representation. His Person is a Representative. But Moral Personality he has not attempted to define, or even to discuss. A Representative indeed is not even a full Jural Person. He is not necessarily a subject of Wrongs and Rights, either in Human Positive Law, or in Divine Natural Equity.

7. The most common "modern conception" of a Moral Person corresponds roughly with Human Being; taking on, however, an analogical extension to Invisible Spirits. It is not widely divergent from a phrase ascribed to Boethius

[12] R. Sohm: *Institutes of Roman Law*, § 32, p. 166, in Ledlie's Translation (third edition). In the same section (p. 165), Sohm speaks of the Slave, as "the bearer of a natural personality". See § 30 for Persons generally; and § 37 for *Personae Juris*. Gaius, in his *Institutes* (IV., 15), writes: "De servis, eadem de ceteris quoque personis". Nowhere does he define or explain *Persona*.

(† 525), which was generally accepted in the Middle Ages: "Persona est naturae rationalis individua substantia".[13] But in regard to Persons of the Trinity, Duns Scotus,[14] like the Solid and Copious Richard of Middleton († 1300), preferred the separate formula substituted by Richard of St. Victor († 1173) in his *De Trinitate* (IV., 22): "Intellectualis naturae incommunicabilis existentia". But this after all is a distinction without a difference. For, only the divisible can be communicated, even by Emanation.[15] And Existence differs from Substance, only in including "Accidents" also; and in not being found in the Athanasian Creed. The mystical Prior of St. Victor in Paris, as he explains in the previous chapter (21), rejected the Boethian definition as inapplicable to the Persons of the Trinity, because they cannot be individual in substance. In chapter 24 however, Richard goes on to propound a: "Descriptio personae quae videtur soli et omni convenire". It is worded: "Persona sit existens per se solum juxta singularem quemdam rationalis existentiae modum". This was approved by Alexander of Hales and Albertus Magnus;[16] and much re-

[13] Boethius: *De Persona et Duabus Naturis* (Christi), cap. 3, p. 1343, in Migne's *P.L.*, 64. See also Peter Lombard's *Sententiae*, III., D. 5. And Thomas Aquinas: *S.T.*, I., Q. 29, A. 24. Locke's first description of a Person goes no further: "A thinking intelligent being that has reason and reflection": *Essay on the Human Understanding*, II., c. xxvii. § 9. But in § 26 he goes on to explain that Person: "is a forensic term appropriating actions and their merit; and so belongs only to intelligible agents capable of a law, and happiness and misery. This personality extends itself beyond present existence to what is past, only by consciousness, . . . that which is conscious of pleasure and pain." It is very curious that Hume, who was a member of the Scottish Bar, should never have discussed Person as a subject of Rights.

[14] Duns Scotus: *Opus Oxon*, I., D. 23, Q. 1, N. 4. Richard of Middleton (the early Franciscan Nominalist): *In Sententias*, I., D. 23, A. 1, Q. 1; and D. 25, A. 1, Q. 2. Melanchthon's formula is peculiar, in treating the Boethian wording as quite consistent with the Ricardian: "Persona est substantia individua, intelligens, et incommunicabilis": *Loci Theologici* (De Tribus Personis Divinitatis). Calvin also adopts "Incommunicability": *Institutes*, I., c. 13, § 6, but he uses *Subsistentia* instead of *Substantia*. Hooker draws the same distinction, in his *Eccl. Polity*, V., c. 51, § 1; but his treatment of the matter is meagre and somewhat obscure. There is, however, a clarifying note in Bayne's recent edition of the Fifth Book. The controversial words are lucidly differentiated by F. Turretin: *Institutio Theologiae*, (1679), III., Q. 23, § 5.

[15] Bishop Durand of Meaux (Durandus a Sancto Porciano) applies the word *Emanatio* to the origins of the Persons of the Son and Spirit, as distinguished from the Father; *Nativitas* and *Processio*: *In SS.*, I. D. 10, Q. 2, § 4; and D. 11, Q. 2, § 23. Nobody has ever explained, how the Apostles on the day of Pentecost could all have been filled with an incommunicable Holy Ghost. This point was seen and seized by Michael Servetus, in his *Apologia ad Melanchthonem* (initio), p. 677.

[16] Alexander of Hales: *Univ. Theol. Summa*, I., Q. 56, M. 6. Albertus Magnus: *In Sententias*, I., D. 25, A. 1: "Melius dicatur existentia quam

sembles the simpler formula of J. H. Alsted, the German Reformed Precursor of Kant: "Persona est ens singularis, per se subsistens et intelligens". There is also a substantial similarity between the words of Alsted, and some used by Durand de St. Pourcain: the great Dominican Nominalist: "Persona non dicit solum individuam substantiam naturae rationalis, sed completam per se subsistentem". *In Sententias*, III., D. 10, Q. 1 (10).

(*b*) Thomas Aquinas himself concurs with Richard in regard to Persons of the Trinity, and says (*S.T.*, I., Q. 30, A. 4): "De ratione personae est, quod sit incommunicabilis". Bishop Durand likewise affirmed: *In Sententias*, I., D. 25, Q. 1, § 3: "Ratio enim personae consistit in incommunicabilitate". He shortened the phrase of Boethius into: "Suppositum naturae intellectualis" (*In SS.*, I., D. 23, Q. 1, §§ 7 and 13); which Ockham (*In SS.*, I., D. 22, Q. 1). still further contracted, as *Suppositum intellectuale*. This last was accepted by Francis Turretin, the Genevan Aquinas (1687): *Institutio Theologiae*, L. III., Q. 23, § 7. And it would not be inconsistent with the full and exact truth: *Persona* (*Naturalis et Moralis*) *est Suppositum Sensitivum;* or its valid Converse: *Omne Suppositum Sensitivum est Persona Naturalis et Moralis*. For: "Nihil est in intellectu quod non prius fuerit in sensu": an Aristotelian tradition generally accepted by the Schoolmen.[17] There can be no intellection without previous sense-perception; and there is no sense-impression which does not start some ripple of intelligence. "Tota humana notitia a sensibus surgit": said Abelard.[18] Even Aquinas admits: *S.T.*, I., Q. 77, A. 7 (C.): "Sensus etiam est quaedam deficiens par-

substantia". Alsted: *Cursus Philosophiae Encyclopaedia* (1620), Tom. I., p. 161; Metaphysica, III., 7. In his *Logic* (1614), he says briefly: "Individuum rationale est persona": IV., c. 9, p. 283.

[17] For example, the "Seraphic" Bonaventura: *In SS.*, III., *Dist.* 37, *Dub.* 1. Accepted also by Hobbes (*Leviathan* I., 1), and Locke (*Human Understanding*, I., 4, § 20). Compare the Fifth Canon of Epicurus, as given in Gassendi's great *Syntagma* (Logic, I., 7): "Omnis, quae in mente est Anticipatio seu Praenotio, dependet a Sensibus".

[18] In his *Tractatus de Intellectibus*, which is not printed by Migne. See p. 747 of vol. ii., in Cousin's edition of Abelard's *Works*. Compare Sully's *Psychology* (1884), ch. v., p. 107: "No intellectual work such as imagining and reasoning can be done till the senses have supplied the necessary materials". As Bain had pointed out in 1855 (*Senses and Intellect*, II., ch. i., § 15, p. 36 in last edition), Sensation is "the key to intellect". Aristotle had long before said: "Sensus autem cognitio quaedam est": in his *Generation of Animals*, I., 23. But, as Zeller has rightly complained, at the end of his chapter xi. (*Physica*) in his *Aristotle* (vol. ii., 134 in English): "Just as his Metaphysic gives no clear and consistent account of Individuality, so his Psychology fails with regard to Personality".

ticipatio intellectus . . . imperfectiores potentiae sunt priores in via generationis": Durand further explains (*In SS.*, II., D. 3, Q. 2) the words used in dealing with Persona: "Individuum, Suppositum, et Persona aliquo modo sunt idem, et aliquo modo differunt, quælibet enim natura singularis in quocunque genere sit, potest dici individua. Suppositum autem non dicitur nisi natura singularis in prædicamento substantiæ, nec quæcunque talis, sed solum completa. Persona dicitur illud idem in natura intellectuali solum; ergo omnis persona est suppositum, et omne suppositum est individuum. Sed non omne individuum est suppositum, nec omne suppositum est persona."

(*c*) Laurentius Valla, the early "Humanist," and first exposer of Constantine's mythical Donation, followed up Richard's objection, and entirely eliminated the notion of Substance from the definition of Person. His own formula: "Persona significat qualitatem, qua alius ab alio differimus": *Elegantiarum*, Liber VI., cap. 34: treats the word Person merely as a name of Relation; for Quality is only an aspect of Relation. "Relation may thus be understood to contain all the categories and forms of positive thought": according to Sir William Hamilton (*Discussions*, 603). The insufficiency of such treatment had been exposed half-a-century earlier by Durand: *In SS.*, I., D. 23, Q. 1 (Utrum Persona significat Substantiam an Relationem), NN. 18 and 20. He concluded (N. 20): "De quo dicitur persona non solum includit relationem, sed etiam cum relatione essentiam". In effect he says (18), Persona *importat* Relationem, sed *non signat.* And Valla would have been right, if he had said *Personalitas* instead of *Persona.* Boethius himself had elsewhere said: *De Trinitate*, 5: "Omne nomen pertinens ad Personas significat Relationem". Bellarmine (in his *De Christo*, II., 5) was very angry at Valla for saying (*loc. cit.*): "Si Persona pro Substantia accipiatur, non esse in Deo Personam magis quam in Bruto". Valla went on to say: "Hanc ego diffinitionem (Boethii), ut Graeculam et ineptam derideo". In his previous chapter (iv.) the great controversial Cardinal treated as synonymous, *Persona*, *Hypostasis*, and *Suppositum;* which last had universally been denominated *Prima Substantia*, from the Age of Boethius; but in Scholastic times was also described as *Ens completum.* Bellarmine further declared Persona to be *fundamentum* (seu *basis*) naturae. In his *D.C.*, III., 17, he concluded his defence of Boethius against "Luther's Precursor," with a rather clumsy paraphrase: "Dicitur igitur Persona individua substantia, quia est unum subsistens, non divisum in se in ratione subsistentiae,

et divisum ab omnibus aliis". Gabriel Biel of Tubingen († 1495), Luther's instructor in Nominalism, had provided a neater alternative: "Singularis substantia ab omni alio realiter distincta."[19]

8. It is generally inferred from Peter Lombard's discussion of Personality in connexion with the two natures of Christ: *SS.*, III., D. 5 (E.): that he regarded the "Anima a corpore exuta" as a Person; though it is not there expressly stated. His contemporary, Prior Hugo of St. Victor, is, however, quite explicit in his *De Sacramentis*, Book II. (Part 1), ch. xi.: "Remanet itaque separata anima a carne, eadem persona spiritus rationalis". Another contemporary, Gilbert de la Porree, took the contrary view in his Commentary on Boethius (*De Persona*, 2): Migne, *P.L.*, 64, p. 1372. The Bishop of Poitiers denied that a disembodied human soul (Anima Separata) could be a Person, on the formal ground: "Quod nulla persona pars potest personae. "Omnis enim Persona adeo est, per se una." It does not appear, whether he fully appreciated the essential ground, that a purely intellectual Person (or being of any sort) is impossible. For intellect may be separated from visible matter, but it must have some sort of sensitive medium (if not substratum), for any sort of active or passive relation. As Stockl justly remarks (*Hist. Phil.*, § 35, 18), Aristotle's theory of God (as Pure Form) is "undoubtedly the weakest point in his system".

(*b*) Gilbert was followed by most of the later Schoolmen; including Ockham: In *SS.*, I., D. 22, Q. 1. Thomas Aquinas broadly opposed the Master of the Sentences; (saying in the final words of *S.T.*, I., Q. 29, A. 1) with regard to the *Anima Separata*: "Non competit ei, neque diffinitio Personae, neque

[19] Gabriel Biel: *In SS.*, I., D. 23, Q. 1, A. 1 (*Ens completum*). The reference to Boethius (on *Prima Substantia*) is: *In Categorias Aristotelis*, I. (De Substantia). Vasquez, however (unlike Bellarmine), affirms, when discussing the Personality of Christ: *In Thomam*, III., *Disp.* 69, cap. 2, N. 9: "Persona enim inferior est hypostasi": meaning that *Persona* is a kind of *Hypostasis*. The latter he seems to equate with *Suppositum* rather than *Substantia*. Petrus Hispanus († 1277 as Pope John XXI.), whose *Summulae Logicales* came next perhaps to the Lombard Sentences in vogue as a Mediæval textbook, did not deal directly with *Persona* or *Suppositum*. But in Tr. VII. (De Suppositionibus seu Terminorum Proprietatibus), he frequently uses *personalis* and *personaliter* with a clearly individual signification. *Personalis Suppositio* (*i.e.* Personalitas) is defined in § 4, as: "Acceptio termini communis pro suis *inferioribus*" (*i.e.* particulars or denoted individuals). As Ueberweg explains (*Hist. Phil.*, § 104): "When *supponere* is used transitively, the *termini* are the *supponentia*, and the individuals the *supposita*". John of Damascus occasionally (*e.g. Dialectica*, 42) uses *Prosōpon* to signify Individual. But he never applies it to the Trinity. His word in that connexion is always *Hupostasis: e.g.*, *Pistis Orthodoxos*, III., 6.

nomen". But in Q. 77, AA. 5 and 8, there are qualifying statements, which confuse the issue. While not disputing the Aristotelian principle: "Sentire non est proprium animae, neque corporis, sed conjuncti"; (*De Somno*, 1); he maintains: "Quaedam operationes sunt animae, quae exercentur sine organo corporali, ut intelligere et velle; unde potentiae, quae sunt harum operationum principia sunt in anima, sicut in subjecto". He concluded in A. 5: "Quaedam vero sentit sine corpore, id est, non existentia in corpore, sed solum in apprehensione animae, sicut enim cum sentit se tristari vel gaudere de aliquo audito". These Potencies of Joy and Sorrow, however: "sunt in anima separata, non secundum appetitum sensitivum, sed secundum appetitum intellectivum, sicut in Angelis". Scholastic *Potentia*, according to De Wulf (*Mediæval Philosophy*, § 285), meant Substantial Reality.

9. The Schoolmen were too acute, not to see that the Abstract Person of Tertullian was logically incongruous with the concrete person of Boethius. The more candid of them admitted that *Persona* had more than one signification. "Nomen Persona varia significabat": Duns Scotus expressly declared (*R.P.*, D. 25, Q. 1); though he did little to clear the already dense confusion. He indeed threw down a new bone of contention: the alleged negative [20] character of Personality. "Per solam negationem additam naturae sit persona": *Opus Oxon.*, III., D. 1, Q. 1, Scholium 4. Scholium 6 explains this as *Negatio communicabilitatis;* which is only a roundabout way of saying that a Person, being an individual substance, must be indivisible. His editor Wadding's chief collaborator, John Ponce of Cork, copiously controverts the Scotian supersubtlety in a long note: pp. 135-166 of Tom. VII. From

[20] Possibly he took the hint from Henry of Ghent († 1293), the most Platonic of the Schoolmen: "Ratio individuationis, . . . quae est ratio constitutiva suppositi, est negatio": *Quodlibeta*, V., Q. 8, p. 246: also *Summa*, *Art.* 39, Q. 4, § 19 (vol. i., p. 635). The Solemn Doctor seems likewise to have anticipated, if he did not suggest, Comte's most blatant paradox: "L'homme proprement dit n'est, au fond, qu' 'une pure abstraction; il n'y a de reel que l'humanité, surtout dans ordre intellectuel et moral": *Philosophie Positive*, Leçon 58 (p. 692 of vol. vi.). Comte's meaning is perhaps more clearly, as well as concisely, expressed, in Edward Caird's sympathetic sentence: "The school of Locke had generally set aside the abstract universal in favour of the *equally abstract* individual": *Social Philosophy of Comte*, 61. Verily, here is a *stultiloquium*, worthy of those Hyperstoics, whom Seneca derided in his 113th Epistle; for making four new "Animals" out of the Cardinal Virtues! Is not an Individual a percept (or intuitive cognition); from which a Quality may be abstracted to form a singular concept, and be afterwards combined with other singular concepts to form a General Concept? See De Wulf on H. of G., in his *Phil. Schol. dans les Pays Bas*, ch. iii., § 5. And H. of G., *Quodlibeta*, VII., 1 and 2.

this it appears that the Thomists were followed by Durand, Ockham, and Suarez, as well as Vasquez, in taking the Common-Sense view: "Persona constituitur per aliquid positivum superadditum naturae": as expressed by Scotus himself (*loc. cit.*). Obviously the Boethian *Persona* adds the quality of Rationality (and by implication of Life) to *Suppositum*, just as *Suppositum* adds the quality of Individuality to *Substantia*.

(*b*) Spinoza long afterwards set out a general principle: "Demonstratio est negatio" (Epistle 50). But this was in referring to geometrical figures, and was intended only for mathematical application. In his *Intellectus Emendatio* (XIII., 96), he positively declared: "All definition must be affirmative". All limitation, whether by words or lines, or walls or cuticles, must indeed be both positive and negative. It necessarily excludes as well as includes; but in definition the inclusion is the primary purpose. The Boethian definition of Person is, after all, nearly satisfactory, if *Rationalis* be understood as implying *Sensitivae*. But it would be improved by the express substitution of the latter word. For, Sensation is sufficient without Intellection. But intellection is impossible without previous sensation; Malebranche notwithstanding.

(*c*) Peter Lombard (in his *SS.*, I., 22, 23, 26) tried apparently, though his language is rather loose, to get over the dogmatic difficulty, by treating the Singular and Plural of *Persona* as radically different in meaning. The former signified Substance or Essence, and the latter Relations: both the mutual relations of Father and Son, *Paternitas* and *Filiatio*; and the relations between them and the Holy Spirit (*Spiratio activa communis* on their part, and *S. passiva* on his part). The divine names were also to be considered, "relativé ad creaturam": I., D. 22, B. Durand inclines in the same direction: *In SS.*, I., D. 23, Q. 1 (18, 19, 20). But that solution was rejected by Richard of St. Victor (*De Trinitate*, IV., 9); Alexander of Hales (*U.T.S.*, Part 1, Q. 56, M. 6); and even Duns Scotus (*R.P.*, D. 26, Q. 1, Scholium 2). Scotus, however, proceeds in Scholium 3, to give other reasons for agreeing with the "Sententia Communis"; to the effect that Divine Persons are "constituted by Relations": as Durand soon afterwards said of *Supposita* generally: *In SS.*, I., D. 4, Q. 1, § 10. Thomas did not follow the Master as to the Grammatical distinction, but held: "Persona in divinis significat simul essentiam et relationem, . . . relationem in recto, et essentiam in obliquo": *S.T.*, I., Q. 29, A. 4. Durand's conclusion is similar in content, but different in

arrangement. His *Persona* designates Essence and *imports* Relation, as already noted in section 7*c*. Hales had nearly anticipated Durand's conclusion, in his *U.T.S.*, Part I., Q. 57, AA. 1, 2, 3; where *Essentia* is very fully discussed in connexion with *Persona*. Suarez distinctly pronounces: "Divinae Personae sunt relativae Personae": and goes on to explain: "Neque essentia esse potest a parte rei sine qualibet relatione, neque relatio quælibet sine essentia". *Metaphysica*, Disputation 7, § 3, N. 27. And so does Petavius: *De Incarnatione*, VIII., c. 10, § 15; "personalis proprietas, quae in divinis personis est relatio". The question is fully discussed in his *De Trinitate*, IV., c. 11.

10. Modern discussion, for the most part, has only darkened further what was dark enough before. Orthodox Western writers have been fettered or intimidated by the mysterious and incomprehensible "Athanasian Creed"; which happily has never been accepted by the Eastern Churches; and has been abandoned by many of the Protestant, including the Episcopal Church in the United States of America. It has never had a syllable of Scriptural or Oecumenical authority; and, as Harnack remarks in his *History of Dogma*,[21] nobody knows exactly how, or when, it came to secure general recognition in the Mediæval Latin Office of Prime. The most outstanding relevant events are; the issue of a Diocesan Capitulary by Bishop Hatto of Basel in 822, enjoining the repetition of the *Fides Sancti Athanasii* on Sundays at Prime;[22] and the extension of this direction in 856 to all the Frankish clergy by the *Capitula Ecclesiastica*[23] of the Emperor Lewis II. Dr. Lumby has told us, in his *History of the Creeds* (1873), ch. v., p. 260; that the Athanasian Canticle (nearly in its present form) is found in the Prayerbook of Charles the Bald, compiled *circa* 870. But Canon Swainson says in his work on *The Creeds* (1875), ch. xxxv., § 2, p. 507: "I cannot find that the Church of Rome has ever formally accepted the document" (*Quicunque*). On his titlepage and elsewhere, he follows Hinkmar of Rheims (*circa* 858) in calling it a "Sermon on the Faith". It was ignored by the Council of Trent, and in the Roman Catechism founded on that Council's decrees. Only in England was it ever in daily use: before it was confined to the six great Festivals in the Prayerbook of 1549.

[21] Harnack: *H.D.*, Part II., Book II., ch. vi., § 2: note 5 to p. 304 of vol. v. in English.

[22] Mansi: *Acta Conciliorum*, XIV., 395: *Capitulare* (4) of Bishop Hatto of Basel, A.D. 822.

[23] *Monumenta Germaniae Historica* (G. H. Pertz), *Legum*, Tom. I., p. 439: *Cap. Eccl.*, 4 (A.D. 856).

(*b*) The Gallic compilers of these imposingly antithetic "Sacred Paradoxes" had taken a lesson from Tertullian's Bar-bluff in another field of controversy: "Bene impudens et feliciter stultus": [24] and gloried in the shame of their own systematic self-contradiction. As Harnack says of Augustine (*H.D.*, IV., 130), they "revelled in the incomprehensible". Just so did Anselm bludgeon the critics of his arbitrary unreason, with his paralysing: "Credo ut intelligam". [25] Mystery and "Profundity" have always been the mask and the cloak of Imposture. The truthful teacher seeks above all things to be intelligible to all men. Candour and Clarity must be the accepted keynotes of True Religion, as they are of True Science and True Philosophy. If a Philosopher cannot make his meaning clear to a classically educated man of moderate intellect, the fair presumption is: either he wishes to befog some cherished *Contradictio-in-adjecto*: or, he has no meaning worth the trouble of unravelling.

11. Let us now recapitulate. The word Person has so many customary and more or less legitimate meanings, not to mention imposing verbal juggles, that it ought never to be used in controversy or exposition without some limiting prefix or affix. When this precaution is neglected, we may fairly assume that an Ethical Person is meant: that is, a sensitive living being, considered as the potential subject of Natural Wrongs and Rights, in the light of Divine Ideal Justice. All the tolerably candid and lucid argumentative uses of the word may be grouped under six heads in a roughly historical order. All of them, metaphorical as well as material, spring from the Latin word *Persona*, which has never been defined in Roman Law, nor in any philosophical work not principally concerned with Christian Theology. The first definition, by any authoritative writer, is that given in ch. 3 of the *De Persona et Duabus Naturis* (Christi); generally (though doubtfully) ascribed to Boethius, who died in A.D. 525: "Persona est naturae rationalis individua substantia". It was sometimes expressed by later writers: "rationabilis naturae individua subsistentia". Or, "individuum rationalis substantiae": as by Hugo of St. Victor († 1141) in his *De Sacramentis*, II., Part 1, ch. 11.

(A) DRAMATIC. *Persona* (like the Greek *Prosōpon*) was originally a very simple concrete object of perception: a

[24] Tertullian: *De Carne Christi*, 5. His notions about Personality and the Trinity may be gathered from his *Adversus Praxeam*, especially chaps. 7-12.

[25] Anselm of Canterbury: *Proslogion*, cap. 1 (finis). Compare Augustine (*Sermo*, 43, § 7): "Ut intelligas, crede".

Mask. It soon came to mean a Face, or the General Appearance of a Body; and then the Actor who wore the Mask, or the man whose words or appearance the Actor sought to reproduce. Lastly, by metonymy, it expressed the Actor's function of Representation, and the General Character or some conspicuous Quality of the Man, Beast, or Demon thus represented. The word *Larva*, originally another expression of Mask, underwent a parallel development through Scarecrow and Goblin into Ghost or Spirit. Linnæus was the first to use *Larva* in Zoology.

(B) FORENSIC or JURAL. *Persona* in Rome (unlike Prosōpon in Greece) passed by analogy from the Stage to the Forum: to describe the concrete subject of a legal relation or *plexus* of relations, and his abstract *Status*, Function, or Dignity. By successive extensions from the *Jus Civile* to the *Jus Gentium*, and the Ideal *Jus Naturale*, it became practically synonymous with Freeman, and then with Human Being. It next became a man's body as opposed to his property: a Somatic or Corporal Person, as we might say. And at last it degenerated into a convenient double-gendered part of common speech: a Colloquial or Grammatical Person,[26] without any legal or controversial significance. This elimination of the jural content, from the shell of the legal term, made possible the genesis of the Physical or Natural Person.

(C) FICTITIOUS or METAPHORICAL. This was a very special variety of the Jural Person, deserving a separate position in classification, on account of its far-reaching Historical effectiveness, in mystifying Ethical, Political, and Theological Controversy. Parallel with the normal Jural Person, there had grown up a lateral metaphorical use of the

[26] It is an open question, however, whether the Grammatical Person ought not to be treated separately from the Colloquial, and derived directly from the Dramatic. Abelard used the Grammatical Person to illustrate the Theological Person of the Trinity: *Introductio ad Theologiam*, II., 12, 13: "Idem homo et prima sit persona secundum quod loquitur, et secunda secundum quod ad eum aliquis loquitur, et tertia secundum quod de ipso inter aliquos sermo est. Et prima quidem persona, ceterarum principium est quoddam et origo seu causa. . . . Sicut autem juxta Grammaticos persona sub disjunctione facilius describitur hoc modo: Persona est qui loquitur, sive ad quem loquitur, vel de quo tanquam diverso loquitur, ita et divinae personae sub disjunctione patentius describi, hoc modo videntur." See also ch. 13 of his *Epitome Theologiae Christianae:* supposed by some to have been compiled by his disciples, and to be the groundwork of the Lombard Sentences. The parallel cannot be deemed very close, unless Abelard's real notion of the Trinity was like Tertullian's: three mutually related phases or functions of the divine Individual Substance.

term; to express the legal relations of a definite noun of multitude (*Collegium*), a personified machine like the *Fiscus*, or a mere conceptual *Suppositum* like the *Haereditas jacens*: the tangle of rights and obligations forming a derelict or undetermined heritage. These were the *Personae Juris* which Austin calls: "Persons by a figment and for the sake of brevity in discourse". Such Persons in English Law are The Crown, and any Corporation. The invention of them has powerfully stimulated the vicious intellectual habits of materiating metaphor; and of personifying nouns of multitude, or machinery of collective action, or even formulas of qualitative Abstraction. And nothing has done more to foster hypocritical Tyranny and Dishonesty, than the fraudulent conversion of jural and other fictitious persons, into natural and moral persons endowed with imaginary Rights Divine. Semper et ubique: *Dolus latet in generalibus.* In the trenchant language of the English Pragmatist leader: "The idolatry of Concepts deludes us into thinking that Man was made for Ideas": F. C. S. Schiller: *Studies in Humanism*, 43-44 (From Plato to Protagoras). Metaphor is the modern substitute for Magic. The old illiterate idolater worshipped the work of his own hands. The new semiliterate idolater worships the tool of his own brains.

(D) PHYSICAL or NATURAL. The germ of this concept, as we have seen under (B), grew upon the Colloquial or Grammatical Person, who had resulted from the diversion and partial decomposition of the Jural Person in his greatest extension. Physical Natural Persons are Individual Substances or portions of matter; each containing a Centre of Sensation,[27] and being therefore capable of experiencing Pain. This was the kind of Person whom Boethius had in his mind, and his definition would have been sufficient, if he had used the term *Sensitiva* instead of *Rationalis*: of which indeed it ought to be held an implied presupposition. For, "Nihil est in intellectu, quod non prius fuerit in sensu". And this, too, coincided nearly with the substratum of the normal Person in Roman Law, excluding merely fictitious *Personae Juris.* In Christian Theology this concept of Natural Rational Personality embraced not only all Living

[27] Foreshadowed perhaps in the Aristotelian *Mesŏtés* and the Platonic *To Mesomphalon.* Plants differed from Animals in lacking such a *Mesŏtés*; whose seat was the heart, according to Aristotle's *History of Animals*, VIII., 1. See also his *Parts of Animals*, III., 4. In his *De Vita et Morte* (3), the heart is called "pantōn tōn aisthētēriōn koinon aisthētērion": (omnium sensoriorum commune sensorium). A Physiologist might prefer to say: an Isolated and Self-contained Sensory Circuit: rather than a Centre of Sensation.

Men, but Angels and Devils; sometimes also Disembodied Human Souls; and even the One Divine Substance: who must be sensitive in some way, because He is always conceived as capable of experiencing Joy and Sorrow.[28] But Bentham was the first effective thinker, who extended the quality of Personality to all of God's sensitive creatures, in proportion to their degrees of sensibility. To him the only test-question was: "Can they suffer?" Pain was "the only evil": *Principles of Morals and Legislation*, ch. x. Pain is indeed the most certain and positive thing in the Universe. And Freedom from (severe unmerited) Pain is the one indispensable condition of any life worth living.

(E) Ethical or Moral. This is a Physical Person, or Sensitive Substance, considered as the subject of Wrongs and Rights under Divine or Ideal Equity: apart from any system of Human Positive Law. And this, like the Physical Person, was not expressly treated by the philosophers of Greece and Rome, though often consciously or unconsciously assumed. The nearest Greek equivalents for Individual and Person were *Atomos* and *Idiotēs*. Mundane Moral Personality has long been impiously restricted to the Genus *Homo*, by the exclusive arrogance of self-exalting Anthropolaters, who call themselves Christians. But there is now a growing moral assent to the Personality of all God's children, on the basis and in the degree of their capacity of suffering.[29] The One True God, although a Sensitive Substance to whom Sin causes Pain, cannot be an Ethical Person, because a supreme lawgiver cannot in strict language be the subject of Wrongs and Rights. And a Person of the Trinity cannot be an Ethical Person, because he is Abstract, has no Substance, and therefore can have no feelings. A supposed concrete person, who is not an individual substance, can be nothing but a verbal juggle. A Metaphorical Person likewise cannot be an Ethical Person. It may have a Legal Right. But it can never have any Right in Natural Equity. For, it has no feelings, and therefore can suffer no Wrong.

[28] "God must be thought of as feeling pleasure—yes and (as far as I can see) pain also, or something like pain": Canon Rashdall on *Personality*, in *Personal Idealism* (Oxford Essays, edited by H. Sturt), p. 387. *Divinus* was the Classical Latin equivalent of our modern Ethical word *Ideal*.

[29] May we not infer such assent on the part of William James, from what he says on p. 69 of his Lecture on *Human Immortality*: "If any creature lives for ever, why not all?—why not the patient brutes"? Locke seems to have entertained a similar opinion: *Human Understanding*, II., ch. xxix., §§ 5-8. And Bishop Butler allowed it to be probable: *Analogy*, I, chap. i., § 21. See also Canon Rashdall in *Personal Idealism*, p. 374.

(F) (1) THEOLOGICAL. Some would bestow this name on the Ethical Person, considered as a potential subject of blissful or baneful immortality. But the only strictly Theological Person is a Person of the Trinity: a merely abstract person in origin and intelligible validity, but practically the weightiest of all persons in History and Controversy; and second only to the Fictitious Person, as the most fertile source of deception and confusion in Moral and Political Philosophy. As conceived by his originator Tertullian, he was essentially Dramatic, with a savour of Jural Personality in its earliest form: the notion of legal *Status* or Function. And that is the only rational self-consistent meaning which he can ever sustain. But he has been distorted, obscured, and turned into impossible nonsense, by the stupid or disingenuous attempts of subsequent dogmatic tinkers, to cram the connotations of Physical and Ethical Personality into Tertullian's rudimentary concept of Relation in Phase and Function. Controversy very soon began, because the word was ambiguous from the beginning. Tertullian's use was only Abstract, and intended to describe the most prominent Qualities, Relations, Phases, Active Modes, or Modal Accidents of the Substance, Jehovah. As Harnack explains (*H.D.*, IV., 121); he regarded Son and Spirit as: "Subordinate to the Father; in fact transitory manifestations". His God was a concrete *Ens Reale*, an Essence, an Existence: but also a rational individual substance, and therefore a Person as afterwards defined by Boethius.

(F) (2) The One true God, as a Person, does not, however, come under this heading. He is a Natural Physical Person: (*Natura Naturans*,[30] according to Aquinas, *S.T.*, I.-II., Q. 85, A. 6): and a Sensitive Substance. Nor does it include the *Persona Ecclesiae:* Bishop, Chapter, or Rector. That is a special variety of the Jural Person, as a subject of positive legal rights. He was the sort of Person appearing most frequently in the *Corpus* of the Canon Law; where his Dignity is spoken of as his *Personatus*. It notices also the *Persona Miserabilis* (Pauper Suitor), *Persona principalis* (as distinguished from his advocate or procurator), and some other varieties of the Jural Person. But it makes no allusion to anything like a Physical or Ethical Person. Even Reiffenstuel and Van Espen, the great critical and expository Canonists of the early eighteenth century, make no attempt at any general or Ethical definition of Person or Personality. The

[30] See Vincent of Beauvais; *Speculum Doctrinale*, XV., 4. And Spinoza: *Ethics*, I. (Concerning God), Proposition 29 (note).

Canonical Sin of *Acceptio Personarum*, mischievously misrendered "Respect of Persons" in our English Bible, is the sin of an unjust Judge in favour of one party against the other and better-deserving. And we shall do well, before leaving the subject-matter of Personality, to explode the poisonous vulgar error, which has grown out of that ambiguous translation.

12. The Greek word *Prosōpolēpsïa*, so unhappily mistranslated Respect of Persons in our Jacobean Bible, was not understood in the modern popular sense of the English words, by Peter and James, or even by Luke and Paul. To them it meant Judicial Partiality: especially the kind of partiality which judged hastily on first impression of superficial appearance: in vulgar English, "Taking a man at his face-value"; and jumping to conclusions without a full and fairly-balanced enquiry. *Prosōpon*, like *Persona*, meant first of all a *mask*, and afterwards also a *face*. And Face is likewise the meaning of the Hebrew *Pānim*, in the parallel passages of the Old Testament, to which we must trace the origin or suggestion of the more notorious phrases of the New. The most enlightening of these sentences is the command in *Leviticus* xix., 15: "Non consideres personam pauperis, nec honores vultum potentis. Juste judica proximo tuo." There have always been class-hating or butter-hunting judges, who systematically favour the poorer or otherwise inferior party: *e.g.*, Coleridge, "The Poacher's Judge" of an Early Victorian Lincolnshire ballad; Monahan, C.J., in Mid-Victorian Ireland; and Gorrie, C.J., in Later Victorian Fiji and Trinidad.

(*b*) *Respectus Personarum* is Canine Latin: neither Classical, nor Jural, nor Patristic, nor even Scholastic. The Vulgate always uses *Acceptio;* but in modern editions (from 1624) *Respectus* appears in the headlines of the second chapter in the *Epistle of James*, as well as the nineteenth chapter of *Leviticus*. 'It seems to have been borrowed from the *Notationes in Scripturam* of the Casuist Emmanuel Saa (1598), which are appended to the chapters of the Antwerp (Plantin) Vulgate of 1624. His use of the word, however, is not honorific. The division into chapters and verses is itself no older than Archbishop Stephen Langton († 1228). *Respectus* does not appear in the many elaborate Indices of Migne's *Patrologia Latina;*[31] and the only reference there

[31] See, however, vol. cxix., p. 518: "Reddite potius Deo vota vestra, xxx in quo absque *respectu* dignitatum aut *personarum*, unusquisque recipiet quod meretur". It occurs in Epistle 53 of Abbot Servatus Lupus († 862), the ally of Gottschalk in regard to Predestination of Damnation; and was addressed to the Emperor Charles the Bald.

given is one to Augustine: *Contra Duas Epistolas Pelagianorum*, II., 7 (13). Augustine's words closely resemble those of the Levitical command. *Acceptio* is likewise the word used by Thomas Aquinas, late in the Thirteenth Century: *S.T.*, I.-II., Q. 97, A. 4, and II.-II., Q. 63, A. 1. His discussion of the matter may be studied by the English reader in Rickaby's *Aquinas Ethicus* (I., 299-300, and II., 34-38). The modern Jesuit translator of the Angelic Doctor has adopted the English Protestant mistranslation of *Acceptio*, probably because it has become part of the current English language. Compare Duns Scotus: "Personarum acceptio non est, nisi adsit ratio debiti:" *Opus Oxon.*, I., D. 41, Q. 1 (14).

(*c*) The first appearance of the phrase in English was due to Bishop Coverdale in 1535. He translated *Proverbs* xxiv. 23: "It is not good to have respect of any persoune in judgement: (Cognoscere personam in judicio non est bonum)". In the Great Bible of 1539 we find: "There is no respecte of parsones with God": *Romans* ii. 11. Tyndale in 1526 had more faithfully rendered the sense of the similar passage in *Acts* x. 34: "Non est personarum acceptor Deus": by "God is not parciall". But there is no reason to suppose that Coverdale, any more than the subsequent "Authorised" Translators, intended anything like the modern Democratic refusal of honour to whom honour is due. That began with a Puritan perversion of their meaning. They used *Respect*, not in the honorific sense, but in the primary simple perceptive sense, surviving in such prepositional forms, as *respecting*, and *in respect of*, and *with respect to*. The envious abuse of *Respectus Personarum* was unknown to Ducange: as well as to Gratian of Bologna and other compilers of the Canon Law. The twelfth of the *Regulae Juris* appended to the *L. Sexti Decret.*, V., Title 12, runs thus: "In judicio non est acceptio personarum habenda"; and there is no other reference to the matter in the *C. J. Canonici*. The Casuists use the same (or some similar) formula. See in particular Laymann: *Theol. Mor.*, IV., 15 (6): "Peccatum acceptionis personarum non committitur, nisi antecedat aliquod debitum justitiae". And compare Hobbes (*Leviathan*, I., 15) on *Acception of Persons*, as the conduct of an Arbitrator, who is "partiall in judgement": and who acts on first appearance instead of final probability.

(*d*) *Respectus* (honoris causa) is not to be found in the *Corpus Juris Civilis*;[32] which gives no countenance to the

[32] The prepositional *Respectu Personarum* occurs: *e.g.*, *Digest*, XVI., T. 3, Fr. 31, § 1. It was also a common Scholastic phrase, meaning

fustian of the Old Bailey. On the contrary we find approval of *Reverentia personarum* in the *Digest*, under the Title *De Testibus* (XXII., 5, Fr. 3, §§ 5 and 6, Callistratus). The *condicio* of the witness must be "explored," and the *Decurio* must outweigh the *Plebeius*. "Testimonia non sunt numeranda sed ponderanda," by every court that knows its business and does its duty. As any just judge would say in the Twentieth Century: "The word of Lord Roberts must count for more, than the oaths of all the canteen-sergeants who ever took tips from an Army-Contractor". The Canon Law was identical with the Roman Civil in doctrine and practice. Innocent III. declared, A.D. 1205: "Ad multitudinem tantum respicere non oportet, sed ad testium qualitatem": *Decretal.* (Greg. IX.), II., *Tit.* 28 (De Testibus), *cap.* 32. And Reiffenstuel, commenting on this chapter, closely follows the words of the *Digest* to which he refers: "Judex *ex officio suo* debat inquirere de conditione testium. . . . Interrogatoria generalia, statum et conditionem ipsorum concernentia": *Jus Canonicum Universum* (1700), *Tom.* II., p. 264. But Van Espen strangely ignores the matter in his *Jus Ecclesiasticum Universum* (also A.D. 1700): except for a slight allusion in Part III., Title 7, ch. VI,, § 51.

13. If Personality be a matter of Degree, as Canon Rashdall admits (in *Personal Idealism*, 374), Respect of Persons (*honoris causa*) must be an indispensable condition of Righteousness in every department of legislation, adjudication, and administration. To assert the justice of equality in credit, courtesy, and other matters of consideration; except when all the circumstances of the two persons (or two cases) are substantially equal; is logically, to break the First Commandment. If every man be not a God; the equal of Jehovah: men must be unequal *inter se;* like the individuals of every other genus of Jehovah's creatures, from ants to angels. Nobody ever says that all dogs are equal, or that one horse is as good as another. Any dealer, who did so, would soon have no customers but expectant cheats. And yet, their differences are far slighter than the difference between the highest man and the lowest.

(*b*) "Equality before the Law" of Man is an obvious systematic outrage on the Equity of God. For, if equals be added to unequals, the wholes are unequal. "Personarum acceptio": said Melanchthon (*Ep. Coloss. Arg.*): "est dare

"Concerning Persons": *e.g.*, Durand, *In SS.*, I., D. 34 (3). Henry of Ghent regularly uses the phrase: "Relatio *sive* Respectus": in his *Quodlibeta*, VII., Q. 2.

inaequalia aequalibus, *aut aequalia inaequalibus*". Ulpian said, "Suum cuique," not *idem cuique*; because everybody's (divine ideal) due is different from that of everybody else. No two *Individua sensitiva*, and no two cases of practical controversy, can be exactly alike to the eye of Omniscience. Man's use of the General Concept and other brain-tools is not a stamp of dignity, but a consequence of limitations. Anthropomorphism never ran riot more absurdly than in the topsy-turvy phantasy of Averroes and Avicenna, that Allah knows nothing but Universals, and takes no cognition of Particulars.[33] God has no need of principles, though framing some for our guidance. We, with our feeble and uncertain intellectual penetration, cannot always reach the divine ideal of Justice on the Case; and are forced to classify, in order to get a fair tale of work done within our limits of time and strength. But that incapacity is no excuse for not trying to get as near as we can; by supplementing well-tested, progressively improved, and mutually corrective standards of grouping, with keen individual observation, whenever the equities of time and cost will permit.

(*c*) Perfect equality, as Hume has pointed out (*Human Nature*, I., 2, § 4): "is a mere fiction of the mind, and useless as well as incomprehensible". And "we can never say, except at a risk, that two actual things are equivalent": declares Alfred Sidgwick; the most penetrating and clarifying writer on Logic since William of Ockham; in his *Use of Words in Reasoning*, 22. "The single cells, which make up the organs of the individuals of a species, have a different position and

[33] Plato seems to affiliate this wind-egg on Parmenides. See his *Parmenides*, 134. Moses Maimonides adopted the Arabian ineptitude, with a modification in favour of particulars of the Universal *Homo*: *Guide to the Perplexed*, Part III., ch. xvii., p. 286, in Friedlander's Translation. For Avicenna and Averroes, see Stockl's *History of Philosophy*, § 83 (24), and § 84 (10). In § 127 (2 and 3) he notes the very similar view of Henry of Ghent, who will not admit any distinct idea of an individual in the mind of God: the *Species Specialissima* (or *Infima*) being His lowest object of cognition: *Quodlibeta*, VII., Q. 1, foot of folio 386*d*. Compare De Wulf's *Mediæval Philosophy*, § 324; and *Philosophie Scholastique dans les Pays Bas*, ch. iii., § 5 (p. 204) and § 6 (p. 236). For the Pragmatic view, see Schiller's *Humanism*, ch. vii. (Reality and Idealism), p. 126: "If we are to hazard any assertions concerning Omniscience, is it not clear that it could have no use for universals". And compare Hamilton's successor: A. C. Fraser, in his *Biographia Philosophica*, v. 201: "Evolution of conclusions from premises . . . was a mark of limited intelligence and experience. . . . Divine Intelligence does not need to syllogise or generalise". In this matter at least, both are Occamists. "Non intelligit Deus aliqua a se per ideas, quod ideae nec movent intellectum divinum, nec sunt intellectus ipse, nec objectum medium inter Deum et alia a se cognita" wrote the Singular and Invincible Doctor: *In Sententias*, I., D 35, Q 5 (*Conclusio* 7).

size in each individual": says the exact and Empeiric Hans Driesch, in his *Problem of Individuality* (65). No two men, as a matter of fact, ever have been, or ever will be exactly equal; and the difference between (let us say) a typical Canon of Christchurch, and a typical Jingo Bully, is far greater than the difference between the Jingo and a Blue-nosed Baboon. All Justice is a matter of Proportion and Degree: as Aristotle forever established in his *N. Ethics* (V., 6 and 7). But Equality is the negative of Proportion as well as Gradation. And therefore, in a world of multiform actual inequalities, Equality is the greatest enemy of Equity, if not the very Essence of Iniquity. Roman *Aequitas*, like the Greek *Epieikeia*, did not mean forced uniformity, but the restoration of a disturbed balance of established Proportion. The Puritan Sham-Sin of "Respect of Persons" is only the latter-day trap-cant, of the primal and primatial Sin of Anthropolatry. The Lust of Equality, not the love of money, is the taproot of evil. Eve and Adam were not tempted with gold, or gems, or any pleasure of sense. "Ye shall be as Gods": said the Serpent; and the bait was swallowed.

IV.—TIME AS SUCCESSION.

By J. C. Wordsworth.

Discussions about the nature of time have held a leading place in the philosophy of recent years, and there can, of course, be no doubt to whose writings they owe their prominence to-day. It is not, however, with Prof. Bergson's theories that the present paper will be concerned, but with a side of the question which has not, so far as I am aware, had any considerable share of attention bestowed on it before. The main problem to be dealt with has, it is true, been raised innumerable times already, but the arguments by which we shall reach our conclusion are perhaps as new as anything can be that has to do with a subject handled so often before.

It may be as well to state this conclusion briefly at the outset. If our reasoning is correct, the moments of time are not successive, any more than the parts of space, and the terms "past" and "future" have no more claim to absolute truth than the terms "above" and "beneath". To summarise the arguments for this as shortly as possible, the first may be drawn from the idea of succession itself. It belongs to the very essence of a successive series, *e.g.* the series of numbers, that each member of it should be of a higher value than those that precede, and include them in itself; but this is not so with time, the parts of which are units identical in value and for that reason cannot be successive. Each exists by itself, and has nothing in it to determine the time on either side of it as past or future. To avoid this difficulty we may take up the idea that the present includes the past, but we shall find this impossible to maintain, though it is necessary for, and involved in, the ordinary view of time. Another argument will be drawn from the difficulty of defining what is meant by such terms as "now" or "the present"; if unextended the "now" cannot be anything at all, but if it has extension it must exist in a single block, which contradicts the usual notion of time, and it will be impossible, besides, to limit its extent. And lastly it will be shown that our idea of time as a successive series is due to a misconception caused by memory, that is to say, by the fact that together with the

present sensation there exist impressions of events belonging to another time which we call "past". The presence in our minds of this background of other impressions co-existing with the present sensation makes us create a similar background of events co-existing in a wider "now" with the present moment; and this background is what we mean by "the past". But we have no real right to create this idea; we only do so because we have impressions of events on one side of the present and not of events on the other, a circumstance which is not due to any pre-existence of the events we "remember," but could come to pass just as easily if time were merely a line of events without any "earlier" or "later," as on our theory it must be.

If the moments of time are to be successive each of them will have to include all that went before it, on the analogy of number, the series which serves as a model for every other. Each "now" will have two meanings; it may be considered as merely the present moment, or as the whole of the past with the present moment for its limit, just as the number "eight," for instance, may mean either the sum of eight units or the final unit in that sum. So that in order to form any conception of time as succession we have to represent the past as still existing, though existing in the rear. And this is what we actually do, however unconsciously; we picture the past to ourselves as a space filled up with existence, while the future appears as a mere blank. We imagine time as a continually extending line, not observing that this involves the permanent existence of the past, distinguishing it from the future. Unless we had the past in our minds at the same time as the present we could never form the ordinary idea of time as succession, and unless the past co-exists with the present the moments or parts of time cannot be successive. The usual idea of time does logically involve the eternal existence of the past in the rear of its moving limit, the present moment. To say that a past event exists no longer only implies that we think of it as having its existence fixed in length, not extending like the events "going on" in the present. The later time must be considered as an addition to, not as annihilating, the earlier; it must increase the length of time, which would otherwise be not an ever-growing line but a stationary point. The past must remain, if time is to be successive, and must continually add to itself an ever new present; for how otherwise could the present be considered as added to the time on one side of it rather than to that on the other, if both were equally non-existent?

To put it in another way, we can only give any event a

number in the time series because we have impressions of other events in our minds, to which we can add it. It gets its rank in the series, for us, by standing as it were on the top of the others. If the different phases of the universe are to have an order, the universe itself must have something corresponding to memory; it can only give a number in the series to the present event by keeping the past, on the top of which the present may stand. If the past were not so retained, why should the present receive its rank in the series from the time on one side rather than from that on the other, when on each side there would be a mere blank? It could not do so, any more than it could receive a similar numerical rank from us if we had no memory. Without memory one event could not appear to us to come after others, and without the retention of the past one event could not in reality come after others.

On the other hand, if each of the two times A and B exists by itself, and one is not when the other is, we shall have to ask what ground there is for applying the terms "earlier" and "later" to them any more than to two spaces, each of which is not where the other is. We must give some reason for treating them in a different way from the parts of space, where there is no irreversible order. They have not the words "earlier" and "later" written on them, nor are they numbered in themselves, whatever numerical value we may give them. No part of time has anything in it to make the time on one side of it past and that on the other future; each exists by itself, and cannot qualify any other part as time that "has been" or time that "will be". Certain events may be at a shorter or longer distance from the present, but the present cannot determine them as either past or future; it cannot decide anything about them, nor have we, standing at the present moment, any ground for determining anything about them, except that they do not exist at the point when the present itself does.

It will not help us, either, to say that there is a movement from one part of time to another, for to say this is simply to repeat, in different words, that one is earlier and the other later, without giving any reason for calling them so. You may suppose movement to be a simple idea or intuition, not requiring to be further defined; but surely it does require further definition, for how does a movement differ from a line in space, if the moment at the end of it does not retain all the others along with itself? A movement seems to imply a progress, and what progress can there be if what we call the last is no greater than the first, if that which moves is no

more at the end than at start? The movement may in that case be taken equally well in the reverse order, like a line in space, for what we call the end is in no way different from the supposed beginning.

Besides, no one can suppose that he would have any "simple idea or intuition" of movement or succession in time unless he retained the past in his memory, for he could not perceive one part of time to be later than another, unless that other were also present to his mind. We think that we "have" just walked from one point to another on our way to a third, but that is simply because we have in our minds a still vivid image of this walking; without that, even if you suppose a sense of motion to be still possible, we should certainly not be able to perceive in which direction it was. And in that case could there really be any sense or idea of motion at all? If, then, memory is necessary for the idea of motion, the permanence of the past would in the same way be necessary for the reality of motion; otherwise there would be no ground for taking the motion in one direction rather than in the other.

It may be said that we have a direct perception of change in the world, and that this gives us succession in time. But the idea of change is itself formed from, and depends on, that of time as succession, and if the latter is proved false the former must also fall to the ground. At any moment, besides the present sensation, we have a background of other impressions more or less faint, some of them representing the same objects as are brought before us in the present sensation; and it is the contrast between the pictures given us by the present sensation and these other impressions that produces the notion of a change. But unless we had the impression of the "former" state of the thing now, simultaneously with our impression of its present state, any perception of change would be impossible. To put it in another way, the idea of change is produced by the contrast, not between two sensations occurring at two different times, but between a sensation and a memory that exist together. This being so, have we any right to say that the fainter impression represents a state that is "past" rather than "future"? We know that that state exists somewhere in time, at some point other than the present, just as we know that a fainter object in space is somewhere at a distance from the place where we stand. But we should not be justified in inferring any more, or in calling one state "earlier" and the other "later".

We say that the time on one side of the present is past and the other future, neither of these having any existence now.

But in that case, if they are alike non-existent, how are we to distinguish which is past and which future? What distinction can there be between two nonentities? And what prevents us from taking the course of time in the reverse order to that which we usually attribute to it? The answer to this will probably be that memory determines for us which is past, that there are in our minds traces of the time on one side and none of that on the other. But would time exist any the less if there were no memory? If it would exist just as much in that case, then it cannot be memory that makes the distinction for the world, though it may for our minds. There are, it is true, traces of what we call the past in the world now as well as in the memory, but these traces are not inevitable and universal enough to make distinctions in an universal entity like time.

Supposing there were but two moving bodies in the world, and these met but once in the whole of time and exchanged their motions; time would exist just as much in that case, but can we say that at any moment in the time on either side of the moment of contact either of the moving bodies would bear traces of its existence on the other side? At no point on either side would they carry any indication of their existence on the other; in whichever order you took the two times you might equally well take them in the reverse order, and the position of affairs on either side might equally be cause or effect. We cannot, then, say that there would be any trace here to distinguish past and future; these distinctions would not exist, and time would be like a line in space. But the whole history of the world, memory included, is, according to what seems the most coherent theory, only an infinite number of simple movements such as we have supposed in the instance above. The ultimate elements of the world carry no trace of their past, and their history might be taken in either order, this way or that; and if this is so with each of them, so it must be with the whole bodies and organisms they compose, however complex these may be. The movement of the world may look irreversible, yet the movements of the atoms that compose it may be reversible enough, and bear no trace of the time on either side of the present. So that there would be nothing to make the time on one side of it past, and the whole course of the world could be taken in either order equally well. But this means that there is strictly no order, *i.e.* succession in events at all, any more than in the objects in space. For an order that is reversible cannot really be regarded as an order at all, and it is only for our convenience that we take such a series in one way rather than another.

Again, it is true that we may have in our minds at one time an image of an event belonging to another, as in memory; but there is no such trace in each of the innumerable elements that form the brain. If time is to form a successive series, and to do so always and everywhere, as of course it must if it is to do so at all, each moment must show an increase of existence, like the increase of value in the scale of numbers, on the part of every atom that exists; each moment must give in each atom an indication of its own place, its own number, in the series of moments. And this obviously could not be the case, unless the past were permanent, and so gave an increasing value in the scale to each moment in turn, by which one might be distinguished as later than another.

This theory of a permanent past would be a plausible way of defending the common idea of time as successive, but we shall see later that it cannot be accepted as sound. Equally false is the idea that causation makes the order of the world irreversible, and settles the place of each moment in that order. On the contrary, it is only because we already take events in a certain order, calling one "first" and another "second," that we find any reason for calling this "cause" and that "effect". We cannot define causation as anything but invariable sequence in time; but this sequence of events is impossible if there is nothing to make the events successive. Before we can prove causation we have first to prove succession in time.

It may be said that what we take to be the effect is always proportionate to the cause, and in this way depends on it, and is marked as effect; but in that case what we call the cause must also be proportionate to the effect, and might also be said to depend on it. We can tell from the effect what the cause is, as well as we can tell from the cause the nature of the effect. But this is to say that either event may be taken as cause or effect, and that neither has a greater right than the other to be considered as cause. It would be impossible to imagine any law of causality which might not be taken the other way round. The motions of two moving bodies "after" their contact might be the effect of their "previous" velocities, but they might equally well be their cause. It is only because we already talk of "after" and "previous," implying that these two motions are earlier and those two later, that we call these the cause and those the effect. There is nothing in the motions themselves to decide which is which. But if, as we said, the order of the world might equally well be taken the other way round, so might

the supposed series of causes and effects. In fact the category of cause and effect breaks down altogether, and must be exchanged for that of reciprocal relation; the connexion of two events in time might best be compared to two objects adjoining in space, and standing in a certain proportion to one another.

We imagine, perhaps, that it is only owing to causation that events have any inter-connexion, and that unless one came first and another second there could be no relation or proportion. One must precede the other, we say, in order to determine the other's nature; if they were ranged in a line, like things in space, none could influence any other. But how should priority in time help this event to determine the nature of that? When the later event takes place the former is past, and the past is said to be non-existent. A is considered to be as much non-existent when B occurs as B was when A occurred; and if this is so, how can it have any influence on B, any more than B can have on A? Priority in time would not give the events any inter-connexion which they would not equally have if they were ranged in a line like objects in space, without any "first" or "second". The truth is that, without perceiving it, we represent A as still existing when B occurs; that is, we unconsciously hold the theory already described, that the past remains and continually adds the present to itself.

But this theory, as we said at the beginning, cannot be accepted as sound. In the first place, we could not say on which side of the present the past really lay; for since we can take the order of events either way, we might suppose that what we call the future is really the past that remains, and that there are continually added to it the events we now call past. In memory we do not actually see the past, but only have impressions of events belonging to the time on one side of the present; and since we have no ground for taking any movement or state of things to be effect rather than cause, we might suppose our memory to be cause of the "past" and not effect. We might suppose the events of which our minds contain impressions to be yet to come. However difficult it may be to realise this, it should not appear stranger than the equally true statement we might make about space, *e.g.*, that the sky we see might be taken to lie beneath the earth. For the distinctions of "past" and "future" in time are no more absolute than those of "above" and "beneath" in space; it is only relatively to us that they have any existence.

We should not, then, be able to say on which side of the

present lay the eternal past, since we can never actually see this, and memory cannot tell us. And in any case the past, if it lay on one side of the present moment, could not be said to exist now in any sense in which the future could not equally well be said to do so. In order to represent time as successive we have to represent the space on one side of the present as filled up, and that on the other as blank; but even then we imagine the space where the future will be as already existing. If our argument is correct, the idea of a past and future is merely an error due to the fact that we have in our minds impressions of the events belonging to the time on one side only of the present. We have, therefore, no need to defend it by maintaining that the so-called past exists now in any sense in which the time we call future does not.

We are thus brought to the conclusion that time is not successive, and that the distinctions of past and future are not absolute. The objections to such a theory are chiefly due to the belief that if events are not successive they must all exist at the same time. But the parts of space, though not successive, do not therefore coincide: nor need the parts of time be simultaneous because there is no first or second among them. It would, however, be certainly true in a sense to say that all events exist now, for we may give the word "now" as wide a meaning as we please. And it is from the consideration of what is meant by this word that we may derive our second argument for the theory here stated.

When we attempt to define the term "now" it soon becomes clear that if we take time to be successive it is altogether meaningless. If we say that neither past nor future exist, what time is it that lies between them and is? We speak of the "present moment," but if this moment is unextended it is nothing; like a point in space it is a mere name, and can have nothing corresponding to it in reality. So time will continually consist wholly of past and future, neither of which exists. But as this is obviously impossible, the "now" must have a certain extent. And it must exist all together and in a block; we cannot say that it never is but only becomes, for this becoming would imply that part of the "now" is past and part future, and if these are to be supposed non-existent we have to find a second "now" within the first, the same difficulty arising again. Or if to "become" means partly to be and partly not, we may ask what part of the "now" really is; and this can only be that part which is past. Becoming, like movement, can only be

represented as a continually extending line, not as a moving point, for a point, as we said, cannot exist or even be imagined.

But according to the common conception of it time must always consist of two non-entities, past and future, to which the whole of it belongs; the whole, for even of the present time one half is looked upon as past, and therefore non-existent, the other as future, and therefore equally non-existent. But there must be some "now" if only to enable us to say that the past and future do not exist in it. Even in saying that the world is not, but only becomes, we cannot help using the present tense, whatever verb we use. And the present tense implies a time which is neither past nor future, a time which must be extended, to be anything at all, and cannot consist of two non-existent halves.

The "now" must exist all together and have a certain extent, but how far are we to say it extends? It can cover an indefinite length, any time, in fact, which can be considered as one and combined in one thought. And we can regard as one any time that is in any respect the same throughout its whole extent. We have, indeed, no reason for stopping short of the whole of time, for, as time, it is the same throughout, its parts forming a single length.

We apply the term now to such different lengths of time as the present minute or the present age, to any period, in fact, in which we ourselves are interested, to any part of our life or to the whole. But it must be some part of our life that presents the same characteristics, and can be regarded as one and the same throughout in some respect, such as occupation in the same work. If we apply it to the whole of our life it is because this too can be regarded as the same in respect of living in general, as opposed to some particular manner or stage of living. But each man's life is in some respects uniform with, and indistinguishable from, the life of his age, and the whole course of the world; and to these latter also, as presenting the same characteristics throughout, the term "now" may be applied. In so far as he is differentiated from these "now" will mean, for him, only the period of his life; in so far as he is one with them it will mean for him the whole of the age he lives in, or the whole of time.

To come to our third argument, the reason why we imagine part of time to be past and part future is easy to find. It lies simply in the fact of memory, *i.e.*, in the fact that our minds contain impressions of the events on one side of the present, and none of the time on the other side. And we naturally

suppose that the long line of events our memory contains must exist somewhere now, just as much as the events of which we are receiving impressions at this moment; they must exist on one side of the present, fill up the space on one side, so that what now exists is not merely the present moment, but a long line of events with the present at one end. It is in this way that we get the two meanings of "the present" which are involved in the common idea of time; we are obliged to think of the past as somehow existing now—unlike the future—yet not as existing in the same way as the present moment. And the fainter the impression is in our minds, the further behind us do we place the event that is its cause, just as we do in the case of distance, which serves us as a model in constructing the idea of the past. On the other hand, we have no representations in our minds of events on the other side of the present moment, and do not suppose any such events to exist in any sense now; but we remember a time when our minds contained no impression of the events that are happening at the present moment, and as the present has been added to the past, so we conclude that a further time will be added to the present.

In thinking of the past we gather the whole of it, together with the present, in a single thought, a single representation; we imagine it as a line, stretched out to an indefinite length in one direction, and having the present at this end, while we regard time as its continual extension in the other direction. But in so representing the past we represent it as existing all together; the act of representation is one, and therefore the parts must all exist at once. The whole past thus becomes a single "now," with the present moment at one end of it. As our representation of events on this side is simultaneous it can naturally be only a symbol of real time, and the idea of succession arises from a confusion between this symbol and the reality. We represent what we call the past figuratively, all at once and in one image, and so spatialise it—for we can only conceive it so under the form of space—but in order to represent to ourselves the time we call future we have to experience it actually, in a series of different acts of thought occurring in real time. The first we picture to ourselves in one moment, in a spatial image, a line: it is like a number taken together as one whole. But to give ourselves an idea of the second we have to experience several moments of real time, like a series of separate units. Thus we treat the two sides of the present differently, the one we call past being, as we said, taken all together as a single "now".

It is only the events on one side of the present that we figure to ourselves as a line, since we have no idea of anything on the other side. Yet if both sides were equally non-existent, as they are generally said to be, we ought either to refrain from making the line at all, or else to complete it by setting the other series of events on the other side. By making it consist only of that side we call the past we are really saying that the past is and that the future is not; we have no other justification for treating the two sides differently. But if we did complete the line, or refrained from making it at all, in either case we could have no idea of movement or succession, since this can only be represented as a line continually extending and never complete.

The usual theory of time does not allow the past to exist any more than the future; there is, therefore, no reason why the one should be represented now, as in memory, any more than the other. It may be suggested that the past is "cause" of the present, and that a cause is always resembled by its effect, but the converse of this last must be equally true; and besides, the resemblance of effect to cause does not mean that the effect contains along with itself a miniature of the cause, but rather that the two are proportionate to one another. It must be purely a matter of chance that we have representations of the past and not of the future, memory and not foresight. Yet we do not regard it as a matter of chance; the representation of the past seems natural enough, while that of the future seems contrary to nature. And the reason why the former seems natural is this, that it is the very representation in our minds of one side of time that produces the idea of a "past": it is not the fact of a "past" that produces this representation, for, as we have seen, on the usual theory of time there is no more reason why the past should be represented than the future. The very existence in our minds of impressions of events on one side of the present makes us call these events "the past"; for such events seem to exist, but at a distance from the present, like objects in space, the images of which are more or less faint in proportion to the distance of the objects from the spot where we are standing. The events exist, but at a distance from the present moment; and that is just what we mean by the past. And it is only after forming the idea of "the past" that we can form the idea of "the future".

We thus come to the conclusion that memory alone creates for us the idea of a "past," and that the distinction between past and future is no more real than that of "above" and

"beneath" in space. It is certainly more deeply rooted in the human mind, and the illusion is harder to destroy, but a very little reflexion might lead one to expect that after the distinctions made in space were shown to be purely relative those made in time would be shown to be so too. The result we have reached possesses more than a theoretical interest, for if we no longer believe one half of time to be past and the other future we shall not consider that the only value of the one consists in its effect on the present, or that the present exists only for the sake of a time which is supposed to be yet to come. One moment cannot have any precedence over or cancel another, and we have no reason for saying of any event that it exists no longer; it would be truer to say that all parts of time are parts of an eternal "now," and that we cannot fix any limits to the present or exclude from it any part of what we wrongly call "the past" and "the future".

V.—IS BERGSON'S PHILOSOPHY MONISTIC?

By S. Radhakrishnan.

The main tendency of Bergson's philosophy is monistic, for according to him there is a universal principle, spiritual in nature, in which all existence is gathered, an initial psychical movement which is responsible for the whole evolution. Creative evolution may be literally compared to the spreading of different branches from a single root. The *elan vital* goes on spreading new branches, creating new novelties. Matter, life, consciousness are such branches. They are the divergent developments of the unity at the start, where the different tendencies are fused into one. "Evolution arises from an original identity." "Evolutionary process, spraying out like a sheaf, sunders in proportion to their simultaneous growth, terms which at first completed each other so well that they coalesced" (*Creative Evolution*, p. 124). All life is a unity and the unity is derived from the initial impetus. A single principle of creation is at the base of things (*C. E.*, p. 291). While thus Bergson's aim as well as the main tendency of his philosophy is monistic, in the detailed development of his view he posits the existence of a second factor, matter, which is indispensable for both the origin and continuance of evolution. "When a shell bursts, the particular way it breaks is explained both by the explosive force of the powder it contains, and by the resistance of the metal. So of the way life breaks into individuals and species. It depends, we think, on two series of causes: the resistance life meets from inert matter, and the explosive force which life bears within itself" (*C. E.*, p. 103, see also p. 134). The presence of the resisting force of the matter is needed to start and maintain the evolutionary process. Without matter to call forth the activity of the *elan*, the latter will be reduced to the level of Spinoza's Substance, inert, static, and incapable of moving into the world of sense-perception. The vital impulse is regarded by Bergson as an effort. It meets with the obstacle of matter at the outset of its course. Its mission is to graft on the necessity of physical forces the greatest

possible amount of indetermination. To cope with the physical necessity it requires energy, which it cannot create. It makes use of the pre-existing energy at its disposal (see *C. E.*, p. 121). The two, life and matter, through their interaction, create the universe with all its varieties. Matter appears to be quite as original and fundamental for the world process as the life principle itself. If this is the conclusion of Bergson's philosophy he is not a monist but a dualist. It is this question of the ultimate unity or duality of life and matter we here propose to discuss.

I.

In *Time and Free-will*, Bergson vindicates the freedom of human consciousness. He points out how determinism distorts the flowing life of consciousness by spatialising it and representing it as a succession of states. The illusion of necessity is due to intellect, which twists out of its shape duration or the real inwardness of conscious life. "Pure duration is the form which the succession of our conscious states assumes when our ego lets itself *live*, when it refrains from separating its present state from its former states" (*T. and F. W.*, p. 100). Conscious life and inert matter have opposed characteristics. The mechanical ideal may be adequate to the representation of external reality which is spatial and solid, but it is inadequate to that of life or consciousness which is duration. Life is dynamic while matter is static. In *Time and Free-will*, the dualism or the opposition between the two, matter and life, space and time, mechanism and dynamism is the most prominent feature. We have a real material world with a multiplicity of objects, a world of space quantity and simultaneity; opposed to it there is a world of change, quality and succession. "Within our ego, there is succession without mutual externality; outside the ego is pure space, mutual externality without succession. . . . There is a real space without duration in which phenomena appear and disappear simultaneously with our state of consciousness. There is a real duration, the heterogeneous moments of which permeate one another" (*T. and F. W.*, pp. 108 and 110). Bergson here affirms the separate existence of two spheres of reality, conscious life and inert matter. Intellect is viewed as giving a defective vision of conscious life though it is adequate to the representation of matter. This dualism though greatly modified still survives in *Creative Evolution*. "The human instinct feels at home among inanimate objects, more especially among solids. Our intellect

triumphs in Geometry, wherein is revealed the kinship of logical thought with unorganised matter" (*C. E.*, p. ix). Again, "For a conscious being to exist is to change . . . a material object remains as it is or else, if it changes under the influence of an external force, our idea of this change is that of a displacement of parts which themselves do not change" (*C. E.*, p. 8). A rigorous dualism between soul life which is change and material object to which change is external is set up.

II.

Soon a difficulty presents itself. How can we account for motion or change in the external world? If the world outside is purely spatial and therefore timeless, then motion becomes an illusion. If all change were psychical, then motion is not change. It is but a sum of simultaneities devoid of the very essence of change which is time. But Bergson is not prepared to say that motion outside is unreal. Movement, whatever be its nature, is "an indisputable reality" (*Matter and Memory*, p. 254). Bergson is constrained to admit that the world outside is also a becoming. Matter is a kind of motion. Modern science in its analysis of the atom into vibrations supports his view. It is not to his purpose to discuss the much-debated question of the nature of the electron. The whole is of the nature of the self. Concrete movement is "capable like consciousness of prolonging its past into the present" (*M. and M.*, p. 329). "Matter or mind, reality here appeared to us as a perpetual becoming" (*C. E.*, p. 287). That mind is change, we have direct evidence. That matter is also movement "our intellect and senses themselves would show . . . if they could obtain a direct and disinterested idea of it" (*C. E.*, p. 288). "Pure intuition, external or internal, is that of an undivided continuity. We break up this continuity into elements laid side by side, which correspond in the one case to distinct words, in the other to independent *objects*" (*M. and M.*, p. 239). Bergson forgets that the reduction of self and universe to motion knocks the bottom out of his defence of freedom in *Time and Free-will*. Freedom originally confined to human consciousness is now extended to the totality of being. "There is no reason why a duration and so a form of existence like our own should not be attributed to the system that science isolates, provided such systems are re-integrated into the whole" (*C. E.*, p. 12). The last part of this sentence suggests the reconciliation between the two views of matter, that it is an inert thing and that it

is a kind of motion. The whole is a flux. The universe endures. Duration is the "very substance of the world in which we live" (*C. E.*, p. 41). "Matter looked at as an undivided whole must be a flux rather than a thing" (*C. E.*, p. 196). For purposes of science we cut off portions of reality and view them in their isolation. Matter, as the scientist regards it, is subject to complete mechanism. For science we want repetition according to Bergson and repetition is possible only in the abstract. In the real world there is nothing fixed, no absolute rest, but all is flow, action, creative evolution. Matter as stable and solid is unreal. "All division of matter into independent bodies with absolutely determined outlines is an artificial division" (*M. and M.*, p. 259). Intellect makes sections in the continuous flow of becoming which constitutes reality, for purposes of science and action. "The distinct outlines of an object are only the design of a certain kind of influence we might exert on a certain part of space. It is the plan of our eventual actions that is sent back to our eyes as though by a mirror when we see the surfaces and edges of things. Suppress this action and with it consequently those main directions which by perception are traced out for it in the entanglement of the real, and the individuality of the body is re-absorbed in the universal interaction which, without doubt, is reality itself" (*C. E.*, p. 12). The mathematical and logical ideals are inadequate to the representation of both life and matter. Bergson does not say that matter is phenomenal in the sense that intellectual categories create matter. He only says that they misrepresent it. Matter exists independently of intellect as soul life exists. But it is in a fluid condition. Intellect cuts out cross sections of this flow, sharpens their outlines and solidifies their contents. Thus, inert matter on further analysis has become practically identical with conscious life. The real world, subjective as well as objective, is dynamic, and can be grasped only by intuition.

If we start from the side of consciousness it is possible to establish the kinship of conscious life with inert matter. In *Time and Free-will*, Bergson has admitted the possibility of treating conscious life from the static standpoint. Though the essence of conscious life is interpenetration or melting into one another, this coalescence is not always present in the same degree. "It is by no means the case that all conscious states blend with one another as rain-drops with the water of a lake. The self in so far as it has to do with a homogeneous space, develops on a kind of surface and on this surface independent growths may form and float" (*T.*

and F. W., p. 166). It is also necessary to view conscious life statically, as there is a definite relation to the objective world in all conscious states. "Every moment of consciousness is contemporaneous with a state of the external world." The distinction between subjective and objective has become so fluid that it is practically impossible to treat the one as dynamic and the other as static. "Neither is space so foreign to our nature as we imagine nor is matter so completely extended in space as our senses and intellect represent it" (*C. E.*, p. 214). "What is given are not inextensive sensations: how should they find their way back to space, choose a locality within it, and co-ordinate themselves there so as to build up an experience that is common to all men? And what is real is not extension, divided into independent parts; how being deprived of all possible relationship to our consciousness, could it unfold a series of changes of which the relations and the order exactly correspond to the relations and the order of our representations?" (*M. and M.*, p. 326). Conscious life and inert matter are both dynamic and static. Possibly, life can be understood in its essence if treated dynamically and matter statically.

It is this community of nature between matter and spirit that Bergson emphasises in his book on *Matter and Memory*. Our intellect adapted to action breaks the world into two and devises all sorts of artificial remedies to glue them together. Idealism and realism are futile attempts in that direction. If we bear in mind that the dualism is a later product, born of and bred by intellect and not primitive and radical to reality, the problem which idealism and realism attempt to solve vanishes. If by intuition we return to the whole, the false distinctions set up by conceptual analysis disappear. "The obscurity of this problem in all doctrines is due to the double antithesis which our understanding establishes between the extended and the unextended on the one side, between quality and quantity on the other" (*M. and M.*, p. 235). Our understanding "creates the opposition which it afterwards contemplates amazed" (*M. and M.*, p. 327). But in reality, the problem of perception is slurred over and not solved by Bergson. He evades it by employing the word 'image' in reference to matter. This queer usage suggests that matter is of the same essence as consciousness. But Bergson is aware that in spite of his dubious devices, the dualism persists. The very title *matter and memory* indicates the dualism, for memory is the essential function of spirit. What Bergson has actually achieved is the reduction of mind and matter to movement. They

are no more two spheres of reality but are two opposed and coexisting movements, two processes opposite in their direction. "This book affirms the reality of spirit and the reality of matter. . . . It is then frankly dualistic" (*M. and M.*, p. vii).

III.

In *Creative Evolution* the independence and self-existence of matter is a vital necessity. The account of the relation of matter to life is transferred from human life to the cosmic whole. In man, the discord between spirit and matter is all in all. Growth and development of self is due to the conquest over material obstacles which thwart the evolution of self. Without the struggle between the two, there would be no life, no change and the individual may be regarded as practically non-existent. Even so the cosmic spirit cannot move out without the resisting medium of matter. Through the interaction of the two the whole universe arises (see *C. E.*, p. 123). Again, life is an effort to insert into matter the largest possible amount of indetermination (see *C. E.*, p. 132). "I cannot regard the general evolution and progress of life in the whole of the organised world, the co-ordination and subordination of vital functions to one another in the same living being, the relations which, psychology and physiology combined, seem bound to establish between brain activity and thought in man, without arriving at this conclusion that life is an immense effort attempted by thought to obtain of matter something which matter does not wish to give it" (Report of the French Philosophical Society Meeting, 2nd May, 1901, quoted in Leroy's *A New Philosophy: Henri Bergson*, p. 97). This effort requires energy which life cannot create. "All that the effort can do is to make the best of a pre-existing energy which it finds at its disposal. Now it finds only one way of succeeding in this, *viz.*, to secure an accumulation of potential energy from matter" (*C. E.*, p. 121). "The impetus of life consists in a need of creation. It cannot create absolutely because it is confronted with matter" (*C. E.*, p. 265). Matter is thus an essential factor confronting life and provoking its activity. The very nature of the creative evolution will be inexplicable without the independent existence of matter. The evolution of life is not the realisation of a predestined plan for there are a million by-paths which end as blind alleys. "Progress is accomplished only on the two or three great lines of evolution in which forms ever more and more high appear; be-

tween these lines run a crowd of minor paths, in which on the contrary, deviations, arrests and set-backs are multiplied" (*C. E.*, pp. 109 and 110). These accidents can be accounted for only as the ways and means put forward by the creative principle to overcome the resistance of inert matter. If the resisting matter were absent, then these failures, 'deviations, arrests and set-backs,' will have to be laid at the door of the vital impulse itself. To avoid it Bergson assumes two original and ultimate principles, life and opposing it matter. When the two conflicting principles are present, the rest of the evolution of the universe is child's play to a philosopher of the brilliance of Bergson.

If Bergson's system is to be viewed as monistic, it is necessary to reduce the duality of life and matter to an ultimate unity by reducing either life to matter or matter to life or both to one common principle. We cannot reduce life to matter, for it is to assume that Bergson has written his volumes in vain. If there is one point more than another that he emphasises in his writings, it is the absurdity of mechanising life, or spatialising spirit. Can we reduce matter to life and regard it as the first effect of life's evolution? It hardly seems possible to do so for life cannot evolve until matter is present opposing it. Evolution presupposes the existence of matter. Granting that life can come out with its possibilities even without the resistance of matter, it ought to have engendered something more useful and important than sheer matter, especially in view of the fact that the evolution of life is unimpeded by any resisting influence. To imagine that the creative impulse gave birth to matter on account of its importance in the later stages of evolution is to import the anthropomorphic or finalistic tendency into Bergson's philosophy. That life should first throw out matter and then play a mimic scene opposing it and with great trouble pressing through and penetrating it, is not conceivable. We are left with the third possibility, the reduction of the two principles to one common centre. Bergson resolves the dualism by making both life and matter spring from one source. "If our analysis is correct, it is consciousness or rather supra-consciousness, that is at the origin of life. Consciousness or supra-consciousness, is the name for the rocket whose extinguished fragments fall back as matter: Consciousness again is the name for that which subsists of the rocket itself passing through the fragments and lighting them up into organisms" (*C. E* p. 275). Thus Bergson reduces matter and life to consciousness. All reality is spiritual. The whole is spirit. Bergson

system is a spiritualistic monism. But there are difficulties in the way of this theory. Why should the supra-consciousness fractionate itself? Why should it break in twain? The evolution of life on this planet is due to its opposition to matter. We ask if the original supra-consciousness or ultimate spirit can evolve into life and matter without the existence of an outside extraneous force, why can we not say that even life on earth does the same? If the supra-consciousness can give out branches, can work out its evolution without any resisting medium, why should we presume that evolution of life on this planet alone requires a resisting obstacle to force it to come out with its possibilities? Evolution must be essentially the same whether it is the evolution of ultimate spirit into life and matter or the evolution of life into plants, animals, and men. Either both require resisting forces or both can dispense with them. The latter alternative does not commend itself to Bergson. So even for the evolution of the ultimate psychical something, a resisting matter is needed. We get back to the dualism of God and matter, supra-consciousness and space.

In this difficulty, Bergson makes matter a negative idea. *Matter and Memory* establishes that life and matter are two opposing movements. There are passages in *Creative Evolution* which imply the same view. "Life as a whole, from the initial impulsion that thrust it into the world, will appear as a wave which rises and which is opposed by the descending movement of matter." "Life is a movement, materiality is the inverse movement, and each of these movements is simple, the matter which forms a world being an undivided flux, and undivided also the life which runs through it, cutting out in it living being all along its track." "As the smallest grain of dust is bound up with our entire solar system, drawn along with it in that undivided movement of descent which is materiality itself, so all organised beings from the humblest to the highest, from the first origins of life to the time in which we are, and in all places and in all times, do but evidence a single impulsion, the inverse of the movement of matter and in itself indivisible" (*C. E.*, chap. iii.). So long as there are two distinct movements, Bergson is not a monist. But he soon makes out that one of these movements is real and the other phenomenal. Matter is not an independent movement but only the inverse of the ascending movement of life. "It is a descent which is only an interruption of a rise" (*C. E.*, p. 291). Matter "endures only by its connexion with that which ascends" (*C. E.*, p. 390). Reality is one continuous, creative ascending movement. Its arrest

or interruption gives us matter. Matter is thus the negation of the spiritual movement. There is only one movement and that is spiritual. Its interruption gives the inverse of it and that is matter. But we cannot understand why the ascending movement should have been interrupted at all. Why should it ever have become inverted? Why should the original jet of spiritual spray suddenly get solidified into matter? To these questions, Bergson has no answer. He does not give us a satisfactory account of how, out of the original psychic force, matter comes. It is not open to Bergson to argue that matter is only a negative idea, a shadow and not a reality, for Bergson's view of negation compels him to consider matter not a pseudo idea but a definite somewhat. Vital order and geometrical order are opposed, but geometrical order is not a mere nothing. There is no such thing as absence of order. Were it not something positive, it cannot serve the purpose of interrupting the rise of life. It cannot occasion the activity of life. So matter is a kind of being and not non-being. It is different from the being of creative activity, but it is not an illusion. But our difficulty is, how can a mere interruption of a positive process create another positive process, though of an inverse order?

In chapter iii., *Creative Evolution*, Bergson urges that intellectuality and materiality rise together. The genesis of intellect and the genesis of matter are correlative (*C. E.*, p. 196). "It is the same inversion of the same movement which creates at once the intellectuality of mind and the materiality of things" (*C. E.*, p. 217). But if matter takes its rise along with intellect at a comparatively late stage of evolution, then it should have been non-existent in the pre-human, *i.e.*, the plant and the animal stages of evolution. But Bergson is emphatic that life even in its origins found matter confronting it. How then can matter which is due to the intellect precede intellect itself? How can matter both have a beginning prior to evolution to set it going and be itself a late product thereof? We have also two views of intellect as we have of matter. Bergson holds that intellect is the interruption of intuition as matter is the interruption of life. But there are passages where he makes out that intellect is something essential to and immanent in the evolutionary movement. It is contained in the *elan vital* as much as instinct and intuition. Development of the *elan* has been along divergent lines and intellect is the end of one line of development. Evolution has taken place on three different lines, the line of automatism exhibited in plants, the line of instinct in Hymenoptera, and the line of intelligence in

man. The primal impulse should have had in it the promise and potency of these divergent lines. Intellect then is not an interruption or an arrest, but a definite possibility of the *elan* produced at one stage in its onward and upward course. It is one of the products of the creative impulse (*C. E.*, p. 110). It is created by life. It is hard to comprehend how intellect can be both a primal tendency of life as well as an interruption of it. If intellect is something positive, even so is matter; if it is only an interruption, then matter is only that.

IV.

Bergson's account of matter is riddled with inconsistencies and contradictions. Throughout the course of life the dualism is kept up, though Bergson has faith in ultimate unity. The difficulties we have raised in this discussion will perhaps be brushed aside by Bergson as purely imaginary ones, due to an abstract and vicious intellectualism. If we only rise to intuition and grasp things as they are, then the difficulties disappear. If we think into things, then our thoughts become one with things and the whole reality, life as well as matter, will appear to be essentially one duration. Absolutist philosophers who make the real immutable being, find it hard to account for change; Bergson who makes the absolute duration finds it hard to account for permanence and stability. The absolutists who are mostly 'identity' philosophers reduce difference and diversity to an appearance, illusion, non-being, and irrationality. Bergson, installing himself in movement, difference, and change, disowns all permanence and identity, and dismisses them as dreams of the mind and abstractions of thought. Bergson asks us to rid ourselves of the illusions of permanence and stability by transcending intelligence and rising to intuition. This is just the discipline the absolutists set to us, if we wish to rise from the world of change to that of motionless perfection. The two, identity and difference, permanence and change, which are organically related to each other are exclusively emphasised and so caricatured. Bergson, instead of giving us a philosophical explanation of the difficulties and contradictions, exhorts us to surrender ourselves to the spontaneity of intuition. We are asked to dispense with all symbols, take shelter in faith, and in that attitude seize reality as it is. We then see God who is the centre of all things, the source of all evolution, who is unceasing freedom, activity, and creation. A cheap and facile monism indifferent to the difficulties of rational philosophy is given us.

It is hard to see how the system is really different from abstract absolutism. In both there is one essential principle from which all things originate. Spinoza's Substance is the *ens realissimum.* It is the totality of all being. So is Bergson's absolute duration. All aspects of the universe, plants, animals and human personalities take their rise from the creative principle. Even though Bergson calls the central principle duration, still he has as much difficulty as any absolutist in accounting for change. Plato's non-being necessary to account for the finite universe, is replaced by matter in Bergson's philosophy. This non-being or matter in both systems is neither ultimate, for in that case the monism is affected, nor phenomenal, illusory or Maya, for then the play of the universe cannot be accounted for. Indications of a more concrete idealism are not wanting in Bergson's philosophy. The ultimate unity is spiritual. Life and matter are assumed to have started from the same source and are recognised to be complementary to each other. They both cooperate in promoting the central identity. Life and matter are the mutual implications of the original unity. Human life suggests to us the way in which the relative oppositions between life and matter, consciousness and life, can be overcome in the higher unity. The individual is essentially a discord, he is a limitation of the *elan vital* by matter. "We are the vital current loaded with matter" (*C. E.*, p. 252). He can attain harmony and reach the point of view of God by spiritualising the human and the finite. Intuition and intellect are not two opposed methods of grasping reality, for only a comradeship between the two can help us to a knowledge of reality as it is. We may hopefully await the further development of these germs of concrete idealism in future works of Bergson.

VI.—DISCUSSIONS.

THE ARGUMENT *A FORTIORI*.

This discussion is assuming a very unusual character. Instead of the parties to it drifting farther and farther apart, and becoming more and more antagonistic, as happens in most discussions, the differences are narrowing and disappearing one by one, until complete harmony is in sight, if we may legitimately speak of seeing harmony. Let the galled jade wince at Dr. Schiller's and Mr. Sidgwick's contributions: my withers are unwrung. Their arguments are addressed rather to the orthodox logician than to me, and every bomb they explode in the shallow trenches of that futile person I applaud and rejoice at.

Dr. Schiller questions the use in this discussion of the words 'validity,' 'purpose of the argument,' and 'proof'. The last has not been used by me, but I will explain what I mean by the others. Of 'the notion of valid forms' Dr. Schiller says 'if it is to be taken strictly,' 'in the sense that their form guarantees actual truth to their conclusions, the validity of arguments *a fortiori* must certainly be denied'. I agree, but I have not spoken of valid forms, nor do I think this a legitimate or a customary use of the word valid. By valid I mean conclusive or incontestable. This of course means a personal attitude towards an argument or a conclusion. That conclusion is valid for me which I cannot contest, but must accept. It does not follow that it is valid for others. The conclusion that the earth is approximately globular and turns on an axis is valid for me, and for most other persons who have examined the evidence; but it is not universally valid, for some people do not accept it. An argument may be generally valid in the different sense that the conclusions to which it leads are in most cases incontestable; but it may not be universally valid, for a case may be discovered, or by a (shall I say perverted?) ingenuity invented, in which the conclusion may be contested. Such are Dr. Schiller's cases of the hand being greater than the arm, and of the Armenian cheating the Scot.

There is no need for Dr. Schiller to impress upon me that many illustrations of reasonings are not real reasonings at all, but are merely verbal forms in which various real reasonings may be expressed. My withers are unwrung. These forms,

which Mr. Russell calls propositional functions, and Dr. Schiller calls forms-for-meaning, I call arguments without a purpose. Dr. Schiller's 'relevant to the context of the actual argument' is my 'material to the purpose of the argument,' and as far as I can discover we are, except in phraseology, in perfect agreement on this matter.

I should not agree, however, and I think that on consideration Dr. Schiller will not agree that if A is greater than B, and B is greater than C, then A may not be greater than C. I admit that if the difference were only microscopical, it might be truer for some purposes to say that A is equal to C; but then none of these purposes would be the purpose for which the premisses were stated. We should have stated the premisses for one purpose and applied the conclusion to another, a most illogical proceeding. If A, B, and C are iron girders some thirty feet long, and if the purpose of comparing them is to determine whether C is long enough to bridge a gap which it is known that A will bridge, then the difference of a few 64ths of an inch between A, B, and C is, as Dr. Schiller would say, irrelevant to the context of the actual argument, or as I should say, immaterial to the purpose of the argument; and for the purpose of the argument, A, B, and C may be regarded as equal. But in such a case, the difference between A, B, and C, being immaterial to the argument, would never have got into the premisses. No engineer in his senses would have said that A was longer than B, or B longer than C: for the purpose of the argument it would not be longer. If for any purpose those few 64ths of an inch do make a difference, as they may if we are estimating the elongation of the girders by the heat of the sun, then those fractions must be stated in the premisses, and then they must appear in the conclusion. They cannot be taken into account in the conclusion unless they appear in the premisses, but if they are sufficiently material to the purpose to be stated in the premisses, they must be taken into account in the conclusion. For one purpose, A may be longer than B: for another purpose A may not be longer than B; but as it is stated in the premiss to be, so must it appear in the conclusion. We are sworn to deliver a true verdict *according to the evidence;* and we may not violate our oaths by ignoring what is in the evidence, any more than we may violate them by taking account of what we have heard out of court. If, for any purpose, A is greater than B, and B is greater than C, then for that purpose A is greater than C; and this conclusion is not in the slightest degree invalidated by the fact that for some other purpose A, B, and C may be regarded as equal. As a pragmatist, Dr. Schiller should agree.

Consequently, the difference between the valid and the invalid forms is, in my opinion, not 'that in the former case we are more prone to think of uses in which the conclusion stated is true, while in the latter we think more readily of cases in which

the conclusion is false,' but that in the former we have a purpose, and stick to it throughout the argument, while in the latter we either have no purpose, or we change our purpose in the course of the argument, or we apply our conclusion to a purpose foreign to the purpose of the argument. Such a proceeding is of the nature of a practical pun.

'The general "validity" of a form is no protection against the falsity of a conclusion drawn in it in special cases.' This is true only as long as the form is used for no purpose, or if the purpose is changed. If the form is adapted to the purpose, and the purpose is kept steadily in view and not departed from, then a form valid in one case is valid in every other in which the purpose is similar.

Mr. Alfred Sidgwick's first question knocks the breath out of me. He asks 'Are there any philosophical reasons why this solution should be considered unsatisfactory?' The solution being the complicated universal for which he is partly responsible, and which is alleged to be required to complete the *a fortiori*. I have already (No. 97, p. 86) discussed this solution at length, and given at length my reasons for considering it unsatisfactory, and hence my breathlessness at Mr. Sidgwick's question. If he had challenged my reasons, I should have been on my defence, but as he does not refer to them, presumably they have made no impression upon him. He gives me, however, an opportunity to repeat them, and I will try further on to put them so as to attract his attention.

'There is no necessary connexion between validity of form and actual truth' (Dr. Schiller); 'the habit of trying to get a single formula which shall apply equally to arguments from facts and to arguments which are only an interpretation of words' (Mr. Sidgwick). Again my withers are unwrung. The distinction between validity of form and material truth, between arguments from facts and arguments that are only interpretations of words, is one which I may fairly say I have drawn more clearly, more completely, and more often than any other writer. It is drawn in my *New Logic* with a clearness, width, and insistence which it is beyond my power to increase. It is sharply drawn and copiously stated in the Introduction, and subsequently receives the greatest possible emphasis by the devotion of a complete and separate Book to each mode of reasoning. If my courteous antagonists mean their warnings for me, I suggest that Dr. Schiller would find it equally expedient to warn Mr. Sidgwick of the futility of traditional Logic; Mr. Sidgwick would be as usefully employed in trying to convert Dr. Schiller to pragmatism; and both of them would find an occupation equally useful in trying to convert the Pope to Roman Catholicism.

Mr. Sidgwick considers that my objections to the literary form in which the alleged universal is expressed are irrelevant, and asks what philosophical weight there can be in them, what pos-

sible relevance such literary criticism can have. I submit that they are strictly and directly relevant. I submit that suitable, clear, accurate expression is the first business of the logician; and that a logician who cannot express himself suitably, clearly, and accurately has not mastered the rudiments of his art, and is advertising his own incompetence in his own business. I submit that speech is the expression of thought, and speech which is confused, obscure, entangled, or muddled faithfully reflects the thought, which also is confused, obscure, entangled and muddled. In this matter I am heretical. I will never admit that what is unintelligible is therefore to be reverenced and meekly accepted as too profound to be criticised. On the contrary, I hold that cumbrousness, confusion or obscurity in a statement raises a *primâ facie* presumption that the thought has not been worked out, and is probably erroneous; and this presumption is fully justified by experience. As an example I may adduce Mill's Canons of the Experimental Discovery of Causes. Every one can see that the third of these Canons is cumbrous, complicated, and obscure in the extreme; but it has been accepted with all the more reverence because it is unintelligible, and has been looked upon as the corner-stone of the Inductive Method. When it is carefully analysed, it is found not only to be erroneous, but to be nonsensical, and by no modification or amendment can sense be made of it. I do not say that the complicated attempts to formulate the universal result in nonsense, but I say that, generally, bad literary form means bad thinking.

Mr. Sidgwick asks me why I am surprised that the syllogistic expression of an argument is unnatural. I do not think I have expressed any surprise on such a score. I have certainly not felt any. 'The more acquaintance we have with the defects of Formal Logic, the less room is there for this surprise.' I agree with all my heart. The surprise would be if any formula of Formal Logic were susceptible of natural expression.

It is a serious irrelevance, Mr. Sidgwick says, for me to assume that because the reasons for the *a fortiori* conclusion are given in two propositions, etc., therefore they are 'the premisses'. Again I agree, but that is what they are commonly called, and sometimes one finds it expedient to bow oneself in the House of Rimmon. 'The question raised by Mr. Shelton is whether they do or do not together constitute the minor premiss only. We cannot solve this question by assuming the answer beforehand.' I agree: but I submit, in the first place, that so far from assuming the answer beforehand, I devoted a great deal of space to discussing it; and in the second place that, even if I had assumed the answer beforehand, this assumption, however illegitimate, could scarcely have been described as an irrelevance.

I am irrelevant also, I am told, in asking whether we do or do not reach a conclusion through a universal. I do not know what Mr. Sidgwick means by irrelevant, but it must have to him some

meaning very different from what it has to me. I cannot for the life of me see how it is irrelevant to ask the very question that I propose to discuss, and do, to the best of my ability, discuss.

I am charmed to find Mr. Sidgwick insisting on the difference between asserting that a conclusion *is* proved by the facts as given, and asserting that it *would be* proved if those facts were found true. This is the difference that I, too, have insisted on so strenuously in my *New Logic*, and again in the postscript to my last contribution to this discussion (No. 97). I never put a hypothetical argument of my own into categorical form, but in quoting, I am something of a purist, and in my quotations I feel bound to reproduce the *ipsissima verba* of my quotee, even if they outrage my tenderest susceptibilities. This is why I gave to formula (1) a categorical expression.

The first question in Mr. Sidgwick's final paragraph puts me in a very delicate position, for it seems to me to be founded upon that very confusion, which we agree in deprecating, between the hypothetical argument and the material argument. 'When we have a fact or facts asserted as sufficient to prove a conclusion, two questions arise before a sound decision can be reached. One is the question whether such facts are true; and the other is whether, if true, they are sufficient for proof.' So far I respectfully agree; but then Mr. Sidgwick continues, as part of the same argument, 'where a complete syllogism is set out . . . these questions refer,' etc. Here my agreement ends. Here I raise my protest. Up to this point we have been dealing with 'a fact or facts asserted' as true, and my contention is that the syllogism is powerless to cope with facts asserted as true. The syllogism is a part, a small and insignificant part, of the machinery of Inference, of the reasoning of consistency, which treats, not of facts asserted as true, but of suppositions. The categorical syllogism is, in my view, an illogical monster that exists only in the distorted imagination of misguided logicians. It is the logical Mrs. Harris, and for my part I don't believe there never was no such argument.

As long as we are using the syllogism, or any mode of inference, our arguments, as they are in fact hypothetical, ought, I contend, to be cast in hypothetical form, and to begin IF A is B, or as the case may be. Such arguments may be perfectly valid though their conclusions are untrue, nonsensical, or inconceivable. But if we are dealing with facts asserted as true, and if we desire that our conclusions shall be true in the sense of being in accordance with fact, arguments of this class are useless. If we desire to arrive at truth we must start with an assertion of truth, and our arguments must open, not with If, but with BECAUSE.

If, for any purpose, A is B, and *if*, for that purpose B is C, *then*, providing the relations signified by the copula are equivalent, the conclusion that A for that purpose is C is incontestably valid, and cannot be gainsaid. But though the conclusion follows

incontestably from the premisses, it need not be true. It may be false, absurd, nonsensical, or inconceivable. If an elephant is a triangle, and if this triangle is melodious, then an elephant is melodious. There is no flaw in this reasoning. The conclusion is incontestably valid; but whether it is true or not is no concern of the argument. In the progress of this argument we run no risks and take no chances. Its form does guarantee the validity of the conclusion, in the sense that it makes the conclusion incontestable, but the form has nothing to do with the truth of the conclusion.

If we are dealing with what is asserted as fact, and desire to arrive at truth, inference will not help us. We must now use a material argument, and must state it thus:—*Because* this A is found to be, in respects material to the argument, like B; and *because* every such B has been constantly in experience found to be C, *therefore*, provided our experiences of B's have been sufficiently numerous, we may take it that for the purpose of the argument this A also is C. In this argument we deal with facts, or with what are asserted to be facts. We appeal to experience at every step, and at every step there is a liability to error. These are the arguments in which risks are incurred and chances taken. These are the arguments whose conclusions, provided all the material conditions are satisfied, must be accepted as true. The difficulty of satisfying all the conditions may be great—it may be insuperable; but if it is surmounted, the conclusion is true. By true, I mean first that it furnishes a basis for action, and second that action based upon it never brings us up against experience that contradicts it. As a pragmatist, Dr. Schiller should agree.

Material reasoning may be invalid. The A that is so like B may after all not be like B in respects that are material to the argument. Every B may not be a C. There may be B's not C's that we have forgotten, or overlooked, or have had no chance of experiencing, and A may be one of these. Our experience of B's may be insufficient to warrant a certain conclusion. In any of these cases if we induce a certain conclusion and look upon the conclusion as true, the reasoning is invalid. But the conclusion is not necessarily false: it may by chance be true after all. And even though all these defects may be in the premisses, the reasoning is not necessarily invalid. If we allow in the conclusion for the errors in the premisses, and state the conclusion as probable or possible, the reasoning is valid, though the conclusion may not be true. I trust these explanations will make it clear that I do not regard validity and truth as the same, and will make clear what I mean by validity and by truth.

If in the material argument the second premiss (Because every B has constantly in experience been found to be C) is called a universal, then every material argument does need a universal; but it is manifest that the experienced universal of the material argument is as different as possible from the postulated universal

of the hypothetical argument that we have been discussing, one variety of which is the *a fortiori;* and that things so widely different should scarcely be called by the same name.

Even in the hypothetical argument, of which the *a fortiori* is one variety, and the syllogism another and scarcer variety, I have no objection to the use of a universal if it is wanted; but my contention is that in many cases of these and other hypothetical arguments, no universal is wanted. Mr. Sidgwick's argument about the sides of the triangle can be conducted equally well both with and without a universal, and the detached universal to whose neatness of expression he calls my attention is never wanted and never used.

If BA and AC are two sides of a triangle, *then* BAC is longer than BC. Mr. Sidgwick says we obtain this conclusion through the universal 'any two sides of a triangle are together longer than the third side'. I deny that this universal enters into the argument. That is the plain issue between us. My contention is that as soon as I understand the premiss, and get it pictured in my mind, the conclusion is reached intuitively. I do not reach it through the neatly expressed universal. On the contrary, I reach this universal through the particular instance before me, if it is a particular instance. If I have never before seen, heard of, or imagined a triangle, I still reach the conclusion intuitively from the case before me; and if this is my first experience of a triangle, how can I have the universal already neatly expressed in my mind? But as soon as the conclusion is reached, I am in possession of the universal, and for this reason: that the premiss may be understood either particularly or universally. BA, AC, and BC may be taken for the specified sides of a particular individual or specimen triangle: but they may not be so taken. They may be taken for the sides of any triangle whatever, and if of any triangle, then of every triangle. In that case, to say that BA and AC are together longer than BC is to say that any two sides of any triangle are together greater than the third side. It is putting the same thought into different words, and you cannot prove a conclusion by restating it in different words, or by referring to a restatement of it. The neatly expressed universal 'any two sides of any triangle are together greater than the third' is explicitly universal: 'BA and AC are together greater than BC' is implicitly universal; and it is a mistake to suppose that one is more universal than the other, or that one is needed to corroborate and justify the other. 'A butterfly is an insect' is as wide a universal as 'Every butterfly is an insect,' as 'Butterflies are insects,' and as 'All butterflies are insects'. 'A butterfly' may mean a particular individual specimen of a butterfly, this very one, for instance, that is now flapping against my window; or it may mean the representative butterfly, the summarised verbal expression of all butterflies; and so it is with Mr. Sidgwick's triangle. It may be an indi-

vidual specimen of a triangle, such as I may draw on this sheet of paper, or it may be the representative triangle, and is then equivalent to every triangle. If it is an individual triangle, I want no universal. I can see for myself that this very BAC before me is longer than this BC, without mentally referring to all triangles or to any other triangle. If it is the representative triangle, then it is the universal triangle; then I am conducting my reasoning in universals; and then I have no need to state my universal twice over, or to invoke one statement of it in order to validate another. Why, even in the neat expression which Mr. Sidgwick presents to me as a universal he does not speak of all triangles, nor of every triangle; he says any two sides of *a* triangle. Very well; ABC is *a* triangle, and to say that BA, AC are together greater than BC is precisely the same as saying that two sides of a triangle are together greater than the third. The comparative neatness of the expression does not, therefore, reconcile me to the syllogistic expression of this argument. It is true that Euclid went out of his way to smooth the ice, and to prove the proposition; but he might as well have saved his breath to cool his porridge, for none of the self-evident data on which he bases his demonstration is more self-evident than his conclusion.

Jevons' suggestion to use the words *case of* is made, not in connexion with the *a fortiori*, but as a device to reduce the hypothetical to the categorical, an operation that I regard as, in the words of the prayer-book, utterly heretical and damnable. Mr. Sidgwick will find it in the Chapter on Conditional Arguments in the Lessons. In the fifth edition of 1875 it is on page 164.

Finally, let me say, in response to Mr. Sidgwick's closing sentence, that I do not agree. For reasons already given I will never agree that in any logical proposition literary defects are without logical importance. Logic is the science and art of reasoning, it is true, but as ancillary to reasoning it includes the science and art of expression. Unless thought is expressed suitably, clearly, and accurately, reasoning must be confused and imperfect; and it is easy to trace much of the confusion of thought that is rampant in logic as well as in other things to bad literary expression. I insist upon this the more strenuously because we have imported from Germany a cult of obscurity, and obscurity passes current for profundity, instead of being recognised for what it is, *viz.*, incompetence.

A reply is almost necessarily longer than the argument to which it replies, and a rejoinder longer than the reply. If I were to answer Mr. Pickard-Cambridge point by point, the Editor would use his blue pencil very freely, or I should occupy more pages of MIND than would be justifiable. Yet if I select certain arguments and confine my answer to them, it will naturally be supposed that I have selected those that are easiest to answer,

and have neglected the others because they are unanswerable. In this quandary I wrote to Mr. Pickard-Cambridge asking him to select three or four of his arguments which he considered the most destructive of my case and the strongest supports of his own, that I might restrict my reply to them. My letter did not reach its destination in time, for I have had no reply,[1] and therefore I must make my own selection from among his arguments. I select those that seem to me the most telling in his favour and against my position.

The most profitable way to approach the subject will be through the one point on which we agree. We agree that if, in the argument $A > B$, $B > C$ $\therefore A > C$, A, B, and C stand for any magnitudes of the same kind, we see directly and immediately that the premisses necessitate the conclusion; but when A, B, and C stand for individuals, Mr. Pickard-Cambridge holds that we require a universal to validate the argument: I hold that we do not, and for the following reasons:—

Imprimis, in scanning the argument and assenting to the conclusion we do not pause to consider the signification, as universal or particular, of A, B, and C. It never enters into our heads to do so. We assent at once; and, to me at least, the argument is no more conclusive in the general than in the particular, no less conclusive in the particular than in the general.

Secundo. If we arrive at the particular conclusion through the rule, how do we arrive at the rule? I submit that there are but two ways. Either we deduce our rule from some more comprehensive rule, or we arrive at it by generalisation from particular cases. If we derive the *a fortiori* from some more general rule, what is that rule? Whatever it may be—for my part I deny its existence—it must derive from one of these two sources. Either it is deduced from a rule still more general, or it is a generalisation from individual instances. Whichever is the case, the same argument applies again, and we must ultimately come to a rule which is a generalisation. From generalisation all rules are derived, either immediately or at second or third hand; and if a universal rule is valid, it can be so only because the particular instances out of which it is constructed are valid. Not until the individual instances are appreciated and found to be valid does it occur to us to formulate a rule. If I have before me an A which = B, and a B which = C, I discern at once that A must = C, and I discern this before I have any rule in my mind. It is because I discern in this case that A = C that I am able to generalise and formulate the rule that things that are equal to the same thing are equal to one another. It has happened to me, and no doubt to others, to try to drum the rule into the head of a stupid boy who cannot understand it. To drum it into his head I have been obliged to resort to an individual case. I have cut three

[1] The reply was eventually received, but unfortunately not until my MS. was despatched.

slips of paper of the same length, marked them A, B, and C, and compared them by actual apposition; and I have found that though the boy could not appreciate the general rule, he saw at once the validity of the individual instance, and from this instance he was able to construct the general rule. I do not deny that there are cases in which we deduce the individual instance from the general rule, but I deny that the *a fortiori* is such a case. It may be that from previous instances we have the rule in our minds, but in a new particular instance we do not need it and do not use it. The new instance of the *a fortiori* goes to reinforce and corroborate the rule, and widens the scope of the generalisation; but the generalisation was derived from the particular instances, and not *vice versâ*. How else can a generalisation be attained?

I freely admit that when we argue from a rule that we suppose is universal, and when it is shown that the rule is not universal, the argument is invalid; but I submit that this is not the case with the instances he adduces. 'Could we ever get beyond the deadlock in which one man says "I see such and such a conclusion emerging from these premisses" and the other says "Well, I don't"?' I do not think we could. I think the validity of the *a fortiori* is unarguable. If a disputant does not see intuitively that $A > B$, $B > C$ carries $A > C$, we must let him alone. If he does not see it, certainly no universal will enable him to see it. If we really are arguing from a general rule to a particular case, the objector has two lines of defence: 1. The case does not come under the rule; 2. The rule is invalid. If the *a fortiori* were indeed dependent on a universal, either of these defences would be open to us. As neither of them is conceivably open to us, I think we must conclude that the *a fortiori* does not depend on a universal. The first of these lines of defence has escaped Mr. Pickard-Cambridge's attention.

The argument with respect to the houses is faulty throughout, and it is no wonder that a reasoner so inefficient should come a cropper. If Peter's house is N of John's, and John's is E of Nathaniel's, it does not by any means follow, *a fortiori* or in any other way, that Peter's is N E of Nathaniel's. Mr. Pickard-Cambridge is careful not to father the argument himself, but puts it into the mouth of a friend. I think his friend has a legitimate grievance. In the circumstances supposed, it is infinity to one against Peter's house being N E of Nathaniel's. It may be at any point of the compass between N and E, or in limit, due N, as when Peter's is at the N pole, or due E, as when Peter's and John's are semi-detached, and Nathaniel's is a thousand miles away to the west. My contention is against a universal in the valid *a fortiori*: I did not contemplate such a wild creature as this.

The third of Mr. Pickard-Cambridge's arguments that I will select for rejoinder is that in which he refutes my contention that there is no universal in the *a fortiori* by showing that I

myself introduce a universal into an argument—that is not *a fortiori*. I should be reluctant to admit that the refutation is good, even if the universal that is found in my argument were what I consider a universal. I have never denied that there is a universal in some arguments, but only that there is one in the *a fortiori;* and I do not see that my argument commits logical suicide if I introduce a universal into an argument that does not pretend to be *a fortiori*. But is my second premiss a universal? Is the proposition 'Obtaining money by false pretences is cheating' a universal proposition? I do not admit that it is entitled, either in Logic or in common sense, to the distinction. In Logic, it is certainly not a universal proposition. It is indesignate. It does not say that *All* obtaining of money by false pretences is cheating, and if we are to be governed by Formal Logic, it is not a universal proposition. If Mr. Pickard-Cambridge abandons Formal Logic, I congratulate him on his escape from his Ruheleben, and welcome him to a feast of common sense; but if we are to be nourished on common sense, my premiss is still not a universal. It merely calls the same thing by another name.

I submit once more, therefore, that when it is said that the validity of the *a fortiori* rests upon a universal, the cart is put to draw the horse. When I have seen that in the cases stated, A must be greater than C, John must be taller than Nathaniel, the mongoose is quicker than a terrier, then I can generalise these instances and draw the rule of the *a fortiori;* but until I see the validity in the particular case, I cannot formulate the general rule, for there is no wider rule from which I can deduce it, and *ex nihilo nihil fit*.

Dr. Bosanquet will not think me discourteous if I postpone my reply to him to a future occasion.

CHAS. A. MERCIER.

THE NECESSITY OF A UNIVERSAL IN REASONING.

THE contributions of various writers to the last two numbers show well the diversity of opinion on this very fundamental question. The discussion having travelled far from its starting point, it is desirable for me briefly to restate the point of view I was endeavouring to put forward. This is all the more necessary because, although I am in the main in agreement with some writers (*e.g.* Mr. Pickard-Cambridge) and in disagreement with others (*e.g.* Dr. Schiller) none appear to me fully to appreciate the significance of my argument on the *a fortiori* notwithstanding the fact that Mr. Sidgwick's great technical knowledge gave me a better solution of a certain phase of the problem than I had reached myself.

In restating the argument, I propose to save space and irrelevance by making no further reference to Dr. Mercier's *New Logic*. I am of opinion that the discussion of the merits or demerits of that book can only be carried out satisfactorily in a special review or article. Moreover some other points of difference between Dr. Mercier and myself are so entangled with personal questions that I shall not attempt to disentangle them, but shall confine myself strictly to the subject under discussion.

As a reply to those who, with Dr. Mercier, deny that such an argument as the *a fortiori* does, in fact, rest upon a universal, I cannot sufficiently commend the last contribution of Mr. Pickard-Cambridge. Merely as an answer to Dr. Mercier, the further brief reply I am including in this discussion seems almost superfluous. I am including it for two reasons. The first is that Dr. Schiller claims to have discovered a certain lack of logical consistency in the view expressed by Mr. Pickard-Cambridge, and may possibly find that same inconsistency in his later essay. On this matter Mr. Pickard-Cambridge must answer for himself, but I give a further reply because I do not think that Dr. Schiller will find the same inconsistency (real or imaginary) in this discussion. The second reason is that I am here more concerned with some implications of the view that in all deduction we necessarily reason through a universal than with the view itself. My treatment leads more directly to the implications.

On the surface, the argument *a fortiori* seems as if it were an exception to the rule that deduction proceeds through a universal. To anyone unaccustomed to analyse the process of reasoning, it appears as if it followed directly from A is greater than B, B is

greater than C, therefore A is greater than C. The conclusion is so obvious that the general principle is not, and, for practical purposes, need not be explicitly stated. Nevertheless it will be readily seen that a general principle is involved in the argument. For what do A, B, and C mean? If the symbols are used in the every-day sense, the statement is meaningless. Size is not connoted by a letter of the alphabet. It will be agreed, I think, that A means *any object whatever possessing the attribute size.* To this extent, those who contend that the explicit statement of the universal in syllogistic form conveys little or nothing not already given are correct, not because a universal is an unessential part of the reasoning, but because the proposition itself can be interpreted as a universal. If we substitute for the symbols their meaning and make a very slight verbal change, our so-called argument reads as follows: Whenever a quantity (A) is greater than a second quantity (B), and the second quantity is greater than a third (C), the first quantity is greater than the third. This is the meaning of the so-called inference, and, as so interpreted, is less an inference than a statement, an explicit statement of an undoubted universal. If, on the other hand, we substitute for our symbols a concrete statement (*e.g.* a sovereign is greater than a dollar, a dollar is greater than a rupee, therefore a sovereign is greater than a rupee[1]) we are entitled to ask why the inference follows. The answer can hardly be other than because it always is so, because the relation is an invariable property, an essential attribute of all entities to which the terms greater and less can be applied. Our inference is, therefore, a particular example of a universal rule.

The above statement is only another rendering of the view expressed by Mr. Pickard-Cambridge. It differs, if at all, in one particular. Certain passages in Mr. Pickard-Cambridge's discussion read as if he contended that an unbroken succession of empirical examples suffice to establish a universal. I am not quite sure that this is Mr. Pickard-Cambridge's meaning,[2] and it is possible that he will agree with me that no universal, if stated to be universally *true*, can be established unless there is, in addition to empirical justification, some *nexus* connecting the terms which makes the relation necessary.

Whether or no Mr. Pickard-Cambridge agrees, that is the point I specially wished to emphasise in my remarks on the argument: A is next to B, B is next to C, therefore A is next but one to C. Certainly I pointed out that the term next was ambiguous, but

[1] It will be seen that several different meanings can be attached to the term greater than, and that the argument is valid for all of them. The validity of the argument is here not invalidated by some degree of ambiguity in the term, so long as the same meaning is preserved throughout.

[2] I particularly refer to passages on p. 206 (MIND, No. 102), but it seems possible that these and similar arguments are governed by the clause: "refute *or* find an exception to this rule".

my objection was more fundamental. My intention was to show that, *in whatever sense the term was used*, the argument was false, and, moreover, was false because, while like every other argument it contained an implied universal, this particular universal was false. The example is of considerable service to those who maintain that the major premise of a syllogism is the best and most convenient method of stating a universal. For the universal implied, expressed as a major premise, would read somewhat as follows: "All instances when one object (B) is in juxtaposition to two other objects (A and C) are instances when the two other objects (A and C) are not themselves in juxtaposition because of the intermission of the first object but are separated by that one object and by no other".

While, with Mr. Alfred Sidgwick, I deplore the æsthetic barbarity of so long-winded a sentence, I submit that the statement in this form does exhibit more clearly than the briefer form the error involved. The statement as made is clearly false, and it is equally clear that the universal, to be valid, requires the additional postulate that A, B and C are in a linear series. Nor, by any manner of argument, can this additional postulate be regarded as implied in those stated. In stating that A is next to B no doubt I imply that A and B are in a linear series. Of course they are. But how can I imply anything about C which is not mentioned? Similarly B and C are in a linear series. But the latter statement says nothing about A. There is therefore no means of obtaining the implication, necessary to the validity of the argument, that A, B, and C are *in the same linear series*. The argument is not merely ambiguous but false, and false because it (unconsciously) assumes a false universal. By stating the universal explicitly, the falsity is rendered apparent. What better example is possible of my contention that all deductive reasoning is through a universal and that it is desirable that any system of reasoning, any logic new or old should render the universal explicit.

This example also brings into clear relief the points of agreement and the points of difference between Mr. Alfred Sidgwick and myself. I find myself so thoroughly in accord with the greater part of Mr. Sidgwick's argument that I am unable to understand why he attaches such small importance to what appears to me to be an essential truth. I fully appreciate the clearness with which he has pointed out, not only the necessity of the universal, but the precise manner in which the universal is in practice used. Nevertheless there must be some important difference in point of view between the emphatic assertion of the necessity of the universal in deductive reasoning and the somewhat apologetic inquiry whether there is any objection to its use in a limited manner and for a limited purpose. It seems to me more logical, when once a principle is asserted, to accept it fully and unequivocally. With Mr. Sidgwick's assertion that the universal can always be given on demand and with his analysis of

the conditions when it is desirable to render explicit what is commonly explicit I cordially agree. But I would demur that the fact that in practical life and argument it is seldom desirable to state an argument *in extenso* is no reason why in logic we should depreciate the significance of the essential characteristics of reasoning. In practical life we do not often deal with first principles, but the examination of first principles is essential in logic and in philosophy.

Those who have followed the argument so far will not demur at the conclusion that any deductive argument can be expressed in syllogistic form. We certainly need to assume that essentially the same general truth can be expressed in a variety of verbal forms without serious alteration of the fundamental meaning. Such I take to be a necessary assumption of any system of formal reasoning. I do not, as some do, assert that the syllogism is the only form in which a valid argument can be expressed. In that a syllogism contains both the explicit statement of a general truth in the major premise and of a particular example in the minor premise it comes very near to bedrock. Any attempt therefore to displace this form by others requires very careful examination. At the same time the expression of an argument in a syllogism is a verbal change of every day reasoning into a definite academic form, and the assertion that this is possible and allowable seems to me to imply the corollary that other forms are possible.

It will be convenient now to deal with the contribution of Dr. Schiller.[3] This is all the more necessary in that Mr. Pickard-Cambridge has not found the space to do so. Moreover I think I may claim to understand Dr. Schiller's view better than many who have dealt with him. Let me say at the outset that I am in full agreement with some of his preliminary remarks. That an argument in the form of the *a fortiori* is not valid and that its truth or falsity depends on the particular relation expressed (as I should put it upon the truth or falsity of the implied universal) is one of the points for which I have been contending. Moreover I think with him that the term validity should not be applied to material implications. Without saying or implying that Mr. Pickard-Cambridge's position is *anathema*, I agree that in so far as he speaks of the validity of a material implication he is using language liable to serious misunderstanding. Moreover, not only do I agree that formal reasonings are of the nature of propositional functions, but I have (in my article in the *Quarterly Review*) made a special point of the similarity. What I am unable to see, is that all the remarks prove anything whatever except possibly (which is quite true) that a number of modern logicians are guilty of considerable confusion of thought and are without any adequate or consistent philosophy of the logic they approve and teach.

[3] Mind, No. 100, p. 513.

Dr. Schiller has elsewhere stated that one possible inference from his premises is that logic is (or should be) symbolic. Again I quite agree and have elsewhere[4] definitely asserted that this is so. Nor can I see the objection unless we confuse the symbolic view of logic with the complicated rigmarole at present called symbolic logic. An adequate and simple system of symbolism to replace statements such as the "J. S. S. universal" of which another example appears in this discussion would be distinctly valuable. In its absence we must make the best of the tools we possess.

The first of the implications I am desirous of putting forward is, therefore, the conceptual view of logic and of reason. In reasoning[5] we deduce the implications of one or more premises. Granting the premises as absolutely true, the conclusions are certain and also absolutely true. Conclusion follows premise with a certainty that is absolute and from which there is no appeal. I consider this aspect of thought of the profoundest significance, and one which no system of modern philosophy in vogue at the present time adequately explains. A corner of the subject appears in the *Critique of Pure Reason.* Spencer alone among the moderns has a full realisation of the fact and an attempt at a consistent explanation.

A second implication is that no reasoning, no strictly logical argument is in itself a guarantee of material or empirical truth. This again has been asserted by many logicians and I see no reason why anyone should wish to deny it. It is this point I think that Dr. Schiller was urging in the passage Mr. Pickard-Cambridge failed to understand. Dr. Schiller has used this to depreciate formal logic and to say, mainly on this ground, that it is worthless. I do not propose to discuss here the precise value of formal logic, but I would say that the reason offered is entirely insufficient. As I have shown on several occasions, the objection, if it can be called an objection, is equally valid against mathematics. I would also point out that the schoolman, from the same premise, draws the conclusion that empirical truth is of an order inferior to rational truth and lies on a lower level. Dr. Schiller's striking discovery is the commonplace of scholastic logic. On the surface at any rate the scholastic conclusion is quite as plausible as that of Dr. Schiller. My own view on this matter I cannot adequately state in a brief discussion. But all competent logicians should realise the fact that before formal

[4] "Theory of Material Fallacies." *Proc. Aristotelian Society*, 1912-13.

[5] To save unnecessary verbiage I am not placing the adjective deductive in front of the term reasoning. With many others, I hold that all reasoning properly so called is deductive reasoning, and that induction and similar processes are not strictly speaking reasoning at all. This is, however, largely a matter of definition and I do not wish to discuss the point here. If those who disagree will supply the adjective deductive where required they will find the statement quite clear.

reason can be applied to empirical and every-day problems there is the process of fitting to see whether or no an argument is applicable. The process is very much what the plain man calls common sense.[6]

The opponents of formal logic seem to me to err in thinking that, unless logic can formalise all the processes by which we in practical life arrive at material conclusions, it is worthless. One opponent will make an attempt to carry out such formalisation. Another, seeing quite rightly that such is impossible, will denounce formal logic as a sham. I cannot agree with either view. The conclusions of practical life are commonly arrived at by processes which are not reasoning at all, and often by very bad reasoning. Occasionally they are little the worse, but sometimes they are very wrong and very untrustworthy. It seems to me that it is the business of logic to formalise only a small part of what we will call (for lack of a better name) practical reason. It is erroneous to depreciate the value of what can be formalised. It is equally erroneous to attempt to formalise that part of human faculty which is essentially not formal but empirical and instinctive.

[6] Anyone who has followed this argument will have a very good idea what I meant in a previous discussion by the terms "the sphere of logic and the sphere of life".

H. S. SHELTON.

VII.—CRITICAL NOTICES.

The World as Imagination. Series 1. By Edward Douglas Fawcett. London: Macmillan & Co., 1916. Pp. xlii, 623.

The metaphysician, like the poet, is born, and not made by ruminating the remains of his dead compeers. He is not a *ghoul*, but himself a 'poet' of sorts, which is why he has so often fallen foul of poetry. Only instead of making verses he is a maker of intuitive guesses at the riddle of existence. These he is fond of crusting over, *after* he has made them, with an external skeleton of logical reasons and technical verbiage which is always woefully inadequate to the living thought that has secreted it. His operations are always intensely personal and peculiar to himself; but if his sense of humour is not developed as strongly as his creative imagination, he is apt to claim for his work universal and eternal validity, and to grow angry when neither his critics nor even his followers can understand it. I hasten to add that Mr. Fawcett has not made this mistake. He has pitched his aims high, but his pretensions low, and he keeps his temper and his head admirably throughout, even in traversing the most trying bits of the traditional routes. So he only claims to propound an experimental hypothesis and admits that "the best available hypothesis may leave very much indeed to be desired" (p. 3, cf. Preface, pp. 23, 128, etc.).

But he is a born metaphysician nevertheless. He began young, as such a one should, and grew enthusiastic over the mystical wisdom of the Hindu sages, in whose metaphysics the poetry is purest, most unrestrained, and unabashed. He then published an imaginative forecast of the aerial warfare of the future, called *Hartmann the Anarchist* (not the philosopher), which might now well appeal to readers oppressed by Zeppelin raids. By 1893 he had discovered, in *The Riddle of the Universe*, that 'Germany, not India,' was the hierophant. But not being hidebound in an academic environment, he could move with the times and outgrow the spell of the classical German tradition. *The Individual and Reality* (1909) is a work he would not himself disavow, and of which no philosopher need be ashamed. Indeed Mr. Fawcett's present work is perhaps to be regarded as a re-working of that half of its predecessor which dealt with 'reality,' while an epic on 'the individual' and his future is definitely promised, if he is spared. Clearly a psychologist might find in the series of his

works precious material for studying the development of the metaphysical soul. But since the departure of William James what psychologist have we who is sufficiently interested in the concrete types of souls or capable of so difficult a study? Perhaps Mr. Shand will kindly attend to Mr. Fawcett's idiosyncrasy. If only a British philosopher could be found patient and patriotic enough to compile a history of philosophy, he might be recommended to cast Mr. Fawcett for the part of the British Schelling.

Technically, however, Mr. Fawcett's German prototype is not Schelling so much as a much obscurer personage, one Frohschammer, who has anticipated his principle of an all-creating Cosmic Imagination which is reflected in us, and revealed especially in the creations of the artist. Mr. Fawcett dismisses him rather cavalierly, and has not apparently read him, but relied on the report of a friend. But they have a good deal in common, and why after all should a philosopher exclaim '*pereant nostra qui ante nos dixerunt*'? If he had not been anticipated to some extent, his message would be utterly unintelligible; this is why, when a 'novelty' does pass the censorship of our conservative habits of thought, it is regularly found to have been anticipated a dozen times. Nor need a metaphysic be less meritorious for having had forerunners. We do not think less of a poet because his lyrics have the same subject as his predecessors—why then should a metaphysician's hymn to the Cosmic Principle be despised because other compositions have been dispatched to the same address? Let us admit rather that there were metaphysicians before Thales, just as there were brave men before Agamemnon. So let Mr. Fawcett too have his shot at the 'Aunt Sally' of philosophy, Absolute Reality!

Now assuredly, if guessing is in order, there is much to be said for his adventure. The wildly whirling world that hustles us through a life that is over before we have discerned the good and the evil in the taste of it, has not, candidly, much appearance of being a work of Reason—not at any rate of a reason similar enough to ours to be reasonably called one. Nor again is it easy to believe as final truth the ingenious human fiction which represents all things as nothing in the end but a soulless dance of deathless particles, bound to their unchanging rhythms by eternal 'laws' of 'mechanism' and 'Causation'. The Mechanical Theory is hard to swallow, not because it is materialistic, low and depressing. inhuman and unfeeling, but because it is 'all too human,' and so transparently compact of devices by which our minds hope to facilitate the calculation of events and to smooth the way for the postulates of scientific method. The wish was as flagrantly father to the thought of the mechanical interpretation of the world as of the naivest theology or of the most arrogantly dogmatic metaphysic.

Accordingly Mr. Fawcett was quite entitled to reject both the rationalistic and the mechanistic way of approaching the

cosmic riddle, in order to suggest a third. And is it not plausible and enticing to suggest that the course of cosmic happening is a game played with itself (p. 23) by some vast imagination with an insatiable appetite for adventure, that shapes it when and as it dreams it, ever new and yet ever reminiscent of its past, both conservative and creative, controlled and free, hypothetical and yet verifiable, immanent in experience and yet transcending it, idealistic and yet realistic too, infinite *per se* and yet self-limiting in this 'finite' world, plunging gaily into the time-processes of its 'creative episodes,' and yet, when the fit is over, able to recuperate in the eternal rest of an *ἐνέργεια ἀκινησίας*?

Mr. Fawcett's scheme is not self-contradictory in some essential point, like most metaphysics. If it is a romance, it is at least consistent. And he can claim for his 'principle' two great advantages. In the first place he points out, quite rightly, that all the other metaphysical explanations involve and presuppose his own. The world cannot be interpreted, either as wholly rational or as wholly mechanical, without abundant use of the imagination. Secondly, his Cosmic Imagination, 'the C.I.' as he affectionately calls it, can really afford to be what other metaphysical principles falsely claim to be, *viz.*, all-embracing. It can be represented as including, not only all reality but all 'unreality' as well; for does it not engender all the worlds and all they harbour, by *dreaming* them? Its elasticity and tolerance contrast very favourably with the proud and narrow-minded exclusiveness of the ordinary Absolutes, which always in the end ignore the reals of low degree, though they usually begin with a perfunctory parade of their inflexible resolve to absorb all finite things. But after that they are wont to discover that finite things are not so easily assimilated; they do not really fit into their internal economy, and have to be vomited out again, until, after a prolonged process of the metaphysical expurgation of whatever is not worthy to form part of Absolute Reality, they are left empty husks, void of content, and incapable of explaining anything at all.

To grant him this superiority is not, however, to concede that Mr. Fawcett's solution is manifestly right. His 'C.I.' may still inspire qualms in the critical, and doubts as to how far it can be admitted as a real explanation. In the first place it is not easy to construe, from the indications given, the real nature and composition of the Cosmic Mind which runs riot in the universe. We are no doubt familiar with the existence and operations of imagination in ourselves. But this gives us 'knowledge-of-acquaintance' rather than 'knowledge-about,' and we can hardly claim to understand it.

Moreover, the imagination which we know is always *personal*, and cannot readily be imagined to become anything else. If stones, atoms, and electrons are capable of imagining a vain thing, *we* at any rate cannot make sure of this. Now, 'the C.I.,'

Mr. Fawcett assures us, is *not* personal; it is not a 'God,' but an 'Absolute'. He does not argue the point, perhaps because he thinks that for philosophy to appeal to personality is to explain *ignotum per ignotius*. But if so, should he not consider whether 'imagination' is not in a like case? Like all the rest, Mr. Fawcett's cosmic principle is *ex analogia hominis*, and demands a jumping-off place in human nature and a big jump to reach it. This leap those who look curiously may be indisposed to take.

In other respects also Mr. Fawcett conceives his principle in ways which do not escape familiar difficulties. It is avowedly monistic, and rests on the old argument for monism. It is assumed that the togetherness of things which makes them into a world can only be explained by presupposing a pre-existing substance in which they are all prepared and prefigured. This assumption (which is nowhere cogent) is rendered particularly unconvincing in Mr. Fawcett's case by his laudable modernity in recognising the reality of *novelty*. For, the critic is tempted to ask, if novelties can really happen, why may not one of the novelties be the coming together of a world which was *not* previously contained in any single cosmic principle?

Again, it is assumed that from the *thought* of an underlying unity which holds together a plurality we can; and must, pass to the assertion that the reality we encounter is *in fact* an example of such unity. That is, it is argued that because we have formed a certain idea and find it useful and *partially* applicable to reality, it is bound to apply (*a priori* too!) to the (unknown) whole. Thus is reality 'proved' to be utterly conformable with our idea. Now this is plainly the essential claim of our old friend 'the Ontological Proof,' in a thin disguise. It is one of the commonest of postulates, but questionable and difficult to verify. It is the *a priori* metaphysician's best, and perhaps only, friend; and yet, with singular ingratitude, he always deserts it when it is attacked. Mr. Fawcett too treats it in this way. He clearly relies on the ontological proof (p. 148), and though he admits it to be a 'command-concept' or postulate, assumes its validity (p. 143): yet he too bestows his benediction on Kant's famous assault on it (p. 55). His argument also that the cosmic principle must be of a psychic nature, because 'consciousness' is a way of unifying plurality, hardly seems adequate to bear the ponderous structure built upon it.

Further scruples are engendered by a scrutiny of the Cosmic Imagination's character. Mr. Fawcett is quite hopeful about it, and even at times enthusiastic, although, unlike most monists, he does not blink the terrible problem of evil. He has faith that the Divine Imagination will extricate itself from all entanglements and in the end emerge successfully from all its cosmic adventures. But the reasons he gives do not seem either convincing or quite consistent. His belief in the prosperous issue of the world-

process, with peace and reparation for all sufferers, seems to be little more than a *sic volo sic jubeo*, a postulate or 'command-concept,' on his own showing. For his confidence in the goodness of things is greatest where he knows least. Compare his eloquent description of "the normal *joie de vivre*" among electrons (p. 499) with the lurid picture of 'the martyrdom of man' in Part III., chap. ix. Moreover, if the hypothetical psychoses of these inferential sentients are so full of the joys of unimpeded activity, does it not follow that an 'Evolution' which did not stop at the bloodless ballets of electrons but proceeded to the miserable battlings of animals and men has been a deplorable mistake, and that the world has been going to the bad in evolving creatures susceptible to pain and death?

Mr. Fawcett then seems as little able as other metaphysicians to clear his Absolute of the charge of being, humanly speaking, either evil, or insane, or both. But this is no reason for withholding recognition from the gallantry of his attempt, which is made with spirit and *esprit*. He has evidently enjoyed writing it, and if they take it in the proper spirit, his readers will enjoy it too. For it is not 'muddy metaphysics' but a lucid book, full of shrewd criticism and forcible phrasing; moreover, the joke on page 403 is really excellent!

F. C. S. SCHILLER.

Conscience and Christ: Six Lectures on Christian Ethics. By HASTINGS RASHDALL. London: Duckworth & Co., 1916. Pp. xx, 309.

THIS volume contains the Haskell Lectures delivered by Dr. Rashdall at the Theological Seminary of Oberlin College, Ohio, in the autumn of 1913. They are six in all, and they have been supplemented by one or two additional notes and short appendices. The problem which the author seeks to elucidate may be best indicated in his own words: "The Moral Philosopher, if he is not one of those who explain away Morality altogether, usually holds that Morality means the following of conscience. In theological books and sermons it is as commonly assumed that the supreme rule for a Christian should be to follow Christ. The writer believes that there is truth in both principles, but it is obvious that the position involves a problem as to the relation between the two authorities—and a problem not very often explicitly dealt with. That is the problem with which these lectures are mainly occupied."

The task which Canon Rashdall has set himself is one which demands knowledge and breadth of view as well as tact and insight. The philosopher is apt to do scant justice to the religious side of the question, while the theologian too often ignores the philosophical issues at stake. Hence if the subject is to be

treated adequately, it is desirable that this should be done by one who is at home alike in the regions of philosophical and theological thought, and who also possesses a sufficient knowledge of modern criticism. Dr. Rashdall is well qualified in all these respects, and this gives importance and value to the work.

In his opening lecture on "Moral Philosophy and Moral Authority" the author frankly faces the question of the relation between the two authorities represented by Moral Philosophy and Christian Ethics. At the outset the nature and authority of conscience as expressed in our moral judgments falls to be determined. As is well known, Dr. Rashdall rejects the purely emotional theory of moral judgments such as Westermarck propounds. If these judgments claim to be objective, "they must come from the intellectual part of our nature, whether we call it Reason or Moral Reason or anything else—not from Moral Sense or any other emotional capacity". As compared with moralists of the Kantian type he is willing to admit emotion has much to do with the details of our moral judgments, but it does not explain them. Dr. Rashdall s own theory of ethics is 'Ideal Utilitarianism,' and has a good deal in common with a writer like Paulsen. On this view the ethical end is human well-being in the fullest sense. The Good, teleologically conceived, is fundamental, and determines the notions of right and duty. The consequences of an act must count: it is a false abstraction which separates an act from its results, and in so far as the results can be foreseen they enter into the moral quality of the act. On the other hand the ultimate moral judgment which takes the form "this is good" is immediate: it is a judgment of value and relates to ends. The way to the end, the means to be used—this has to be found through experience.

With much in this statement we can cordially agree. Were moral judgment a pure matter of feeling its objectivity could not be maintained. Nevertheless it may be fairly argued that the feeling and volitional elements play a distinctly larger part in the working of the moral consciousness than Dr. Rashdall is disposed to admit. If we are not mistaken, he seems to hold that moral ends are purely rational, while at the same time maintaining that the ultimate moral judgment which refers to the end is an immediate judgment of value. But the fact is it is only because man is a centre of feeling and will that the teleological conception has meaning for him. Hence these elements play a part in determining the good or moral ideal. One would have been glad of an explicit statement from Dr. Rashdall on the relation of value to rationality.

If our moral consciousness thus sets before us the comprehensive Good as our end and ideal, in what respect can Christ help us? The latter part of the chapter deals with this point. The teaching of Jesus has deepened the moral consciousness. He has given living expression to the ideal of conduct, and has made it

operative in the minds of many who could not have conceived it for themselves. And if we are assured of His supreme insight, we shall accord to Him high ethical authority. Now what grounds have we for supposing that Jesus was supremely likely to be right in His ethical judgments? It seems to me the author handles this question very fairly and very frankly. Though we may be convinced, he remarks, that Jesus worked miracles, it by no means follows that all He said was ethically true—a point which apologists sometimes forget. The truth is that the authority we can claim for the teaching of Jesus must in the end depend on the way in which that teaching appeals to the moral consciousness. The latter is the final tribunal; for a submission to the authority of Christ apart from the approval of conscience would not be legitimate, and it was to conscience that He Himself appealed.

The second lecture—"Ethics and Eschatology"—deals with an urgent question which has an important bearing on the moral authority of Christ. According to the 'consistent eschatologists,' of whom Schweitzer may be taken as a type, the moral teaching of Jesus was purely of the nature of an *Interimsethik*: the all important part of His message was the impending catastrophic advent of the Kingdom of God. If this were true, then in the light of history Jesus must have been profoundly mistaken in the essence of His Gospel, and His authority would be shaken. Some of the eschatological sayings of the Gospels lend a certain plausibility to this extreme view, and the whole subject is one which requires careful and judicious handling. In this chapter and within the space at his disposal, Canon Rashdall, if I may judge, succeeds admirably in setting the problem in a right perspective and in leading his readers to sound and reasonable conclusions. He has an adequate knowledge of apocalyptic literature as well as recent criticism of the Gospels, and he shows convincingly that the extreme eschatological theory rests on a distorted view of the evidence. There are elements in the teaching of Jesus which are plainly inconsistent with the theory. Of course Dr. Rashdall frankly accepts the limitation of Christ's knowledge in certain aspects, but he points out that it was the inner character of the Kingdom, and not the precise time of its outward advent, which was important. It is inevitable that in so difficult a matter there will be difference of opinion about the acceptance of some eschatological sayings as genuine and the rejection of others. But the author is fully aware of this; and it seems to me he gives good reasons why the admittedly eschatological element in the teaching of Jesus does not really impair the religious authority and value of His message.

Having dealt with this difficulty the writer goes on to give in his third lecture a sketch of the ethical teaching of Jesus. I shall not attempt to follow his discussion, but one or two points of interest may be noted. The work of Jesus, we are told, consisted

to a great extent in separating what was true and valuable in the traditions of His people from lower elements. In the second place He set aside the merely external idea of goodness, and traced the good to the inner disposition. Finally He taught that man everywhere had an obligation to his fellow man. In the text these points are amplified and enforced. Dr. Rashdall goes on to urge that the moral teaching of Jesus forms a connected whole, while His life is a harmonious illustration of His teaching and a concrete presentation of the ideal. He justly insists that the moral ideal leads up to religion, and religion guarantees the objectivity of moral obligation. This is essentially true of the Christian Ethic. In an additional note there is a useful and interesting exposition of Christ's teaching on some of the ethical virtues.

In the fourth lecture and in an additional note objections to the moral doctrine of Christ are considered at some length. Thus it is contended that Jesus advocated an exaggerated self-sacrifice; that He inculcated a pure doctrine of non-resistance and submission, as Tolstoi, for instance, believed; and that He set forth a kind of communism. In dealing with these objections Dr. Rashdall covers fairly familiar ground, and his reply on the whole is quite successful. To the argument that the Gospel says nothing about the duty of self-development, the answer is an admission that Jesus says nothing about the culture of the æsthetic and intellectual powers. On the other hand he does not oppose it. This admission carries with it the conclusion that the teaching of Christ does require development in order to be accepted as a final and permanent ideal for the modern world. This, we are told, is a perfectly legitimate demand, for the Founder of Christianity never sought to lay down a hard and fast code of ethics. What He did inculcate were certain general ethical principles which are capable of infinite expansion with the expanding life of society. On this principle of development we must insist, if the teaching of Christ is to be a supreme guide for modern life. At the beginning of the fifth lecture on "The Principle of Development" this truth is emphasised, and it is pointed out that two conditions are involved: "firstly, that that teaching is understood as laying down general principles and not detailed regulations of eternal obligation: secondly, that the necessity of development is admitted in the amplest manner".

In this chapter, as well as in the preceding one, Dr. Rashdall will be found combating the notion that Jesus taught asceticism in the stricter sense of the word. He of course easily shows that the ascetic severities of the early and medieval Church cannot fairly be based on the precepts of the Gospels, and the life of the Founder of our religion gave no warrant for them. He argues that, if there is a sense in which the Christian must renounce the "world" as remorselessly as ever, it is also true that "the Christ of whom we hear so much in the 'Imitatio' has not much in

common with the Christ of the Gospels". One or two of the more pronouncedly ascetic sayings attributed to Jesus Dr. Rashdall traces to the consciousness of the later Church. It is possible however to argue, that they found a place in the Gospels because they were felt to correspond to elements in the traditional conception of the character of Christ. Be this as it may, I do not feel sure that the writer does sufficient justice to the negative or world-renouncing element in redemptive religion. The religion of Thomas à Kempis may not be the religion of Christ, but the worldly Christianity of modern times is still less so. As William Law remarked, the world become a friend is more dangerous than when it was an open enemy. But of course the negative movement of the religious spirit is only half the truth, and Dr. Rashdall is perfectly right in emphasising the positive side of the Christian ideal.

If, as I should put it, the Christian breaks with the world, this is the movement by which he gains a fresh depth and inwardness of spiritual life. And he returns to the world that he may overcome the evil in the power of the new spirit.

The concluding lecture gives us a clear and useful view of the relation of Christianity to other Ethical Systems. The reader will find there a very convincing statement of the unique claims and value of the Christian Ethic. Dr. Rashdall has no doubt about the essential and central place of Christ in the system. "A Christianity without Christ—or a Christianity in which Christ is not emphatically placed above other masters—will always be a maimed and not very effective Christianity." There is one statement in the chapter which, I think, may be misleading. On pages 255-256 Dr. Rashdall argues that "Every religion, whatever else it is, always includes a theory of the universe," and "to get the religious experience characteristic of a religion, you must believe in its theory of the universe". If this means no more than that a religion implies a general world-view, it is true. But it is important to remember that this world-view is primarily conceived in terms of value. The phrase 'theory of the universe' suggests an intellectual conception, and in this case the assertion can hardly be made good. The 'theory of the universe' held by a Christian in the first century is not identical with that of a Christian in the twentieth, and yet both may share in the same characteristic spiritual experience.

In conclusion I should like to say that I have read this volume with great interest and profit. The subject is one which required treatment, and a treatment which combined candour with courage. Both these qualities are conspicuously present in the book. No doubt there is a good deal in it which ultra Evangelical and High Church people will not find to their mind. But that larger public which is neither the one nor the other, but is honestly seeking for light on the problems of Christianity, will, I believe, receive great help and encouragement from Dr. Rashdall's Lectures.

Herbert Spencer. By Hugh Elliot. "Makers of the Nineteenth Century." Constable, 1917. Pp. 329. 6s.

It is curious to notice the effect which the phenomenon of the present war, waged by the leading intellectual nations against one another, has had on philosophers who have been conspicuous upholders of the rights of human reason and the firmest believers in its power. Mr. Bertrand Russell in his recent book, *The Principles of Social Reconstruction*, has had to fall back on a theory of primitive irrational impulses. And Mr. Elliot in this most interesting and fascinating study of the character of Herbert Spencer and his work finds it necessary to keep reminding us that Spencer failed to recognise an "emotional" human nature, much older and more primitive than "logical" nature, whence spring the hatred and rivalry leading to mutual slaughter and the destruction on a vast scale of accumulated wealth. How short our memories are! How many of us three years ago could have believed, or would have confessed we believed, that primitive instincts and emotions might at any time burst through and overwhelm the life of reason? Even those who, like Mr. McDougall in his *Social Psychology*, represented primitive instincts as the basis of human nature, expressed no warning that instincts might be fraught with danger to the whole intellectual corporate life of humanity. It is not, we may be sure, an individual defect, such as a poverty of his own emotional nature, which, as Mr. Elliot suggests, is needed to account for Herbert Spencer's anti-militaryism and for his firm belief in industrialism and individual freedom as the forces which would exorcise militaryism. We all used to think so. Indeed the reason why we seem to understand Herbert Spencer's attitude to the problem of life and knowledge, *i.e.* his philosophy, so well, and the reason why we feel so profoundly dissatisfied with it, is just the fact that he represents and expresses so clearly the view of nature, life, and history, which seemed to us once to be the pure reflection of an age of scientific discovery and industrial evolution. When we criticise Herbert Spencer it is our own old selves we are criticising.

It was a strange phenomenon. A young man with no special training, no obvious qualification, no knowledge of art and literature, no direct acquaintance with the works of the great philosophers, no devotion to science, no application to any experimental research, conceived the idea of thinking out a complete system of knowledge, and of writing it down for the instruction and permanent benefit of mankind. And he did it. Not only so but the fame of his intention and the interest in his performance spread throughout the whole world. The interest waxed and waned, but through encouragement and discouragement he carried the work to completion in the course of a long life, and according to plan and with practically no variation from the scheme as he originally conceived it.

What is the explanation? Mr. Elliot's answer is "genius". We need not reject it, but it hardly suffices. It is like Spencer's own plan of pulling up short before the unknowable. And indeed there is no need to be satisfied with it, for Mr. Elliot supplies us with the material for a reconstruction.

Spencer had unbounded confidence in logical reasoning or discursive thinking. He conceived that nothing else was needed. If he wanted to explain the customs and beliefs of primitive man, all that it was necessary to do was to think himself into the primitive man's limitations and then he would know how the primitive man thought. He could not imagine that primitive man thought otherwise or differently than he, Herbert Spencer, would think under the conditions. There is nothing very peculiar or original about that method. It vitiates a vast percentage of current psychological and anthropological theory.

Another striking characteristic of Spencer is his contempt for history. He could not conceive that any advantage in framing a new hypothesis or theory could be derived from the knowledge of hypotheses and theories produced under other and different conditions. This evidently led him to regard the study of Plato, Kant, or Hegel, not merely as waste labour or a frivolous dissipation of mental energy, but as a positive handicap. These two traits gave him the strength of self-reliance but they really constitute the weakness of his whole philosophy for us, and are the main reason why his work seems to so many to-day, including Mr. Elliot, devoid of permanent intrinsic value.

It is not a little curious that one who took evolution as the keynote of philosophical interpretation should himself have been so insistent on the detachment of his system from the historical tradition. Mr. Elliot, I think, supplies the clue, or at least indicates the probable outward determining factor of this hostile attitude toward historical philosophy. It is G. H. Lewes' *Biographical History of Philosophy.* This appears to be the source of all Spencer's special knowledge of historical systems. It was published in 1845-46 in four volumes, and its purpose was to explain and popularise the Positive Philosophy of Auguste Comte. We read in the preface to the third edition of that work that "it was addressed to the general public rather than to well-read students, it had no pretensions to the completeness or erudition displayed in many other Histories, being little more than a rapid survey of the course of metaphysical speculation, written with the avowed purpose of dissuading the youth of England from wasting energy on insoluble problems, and relying on a false method. With this object of turning the mind from Metaphysics to Positive Philosophy, it employed History as an instrument of Criticism to disclose the successive failures of successive schools." This seems on its negative side so thoroughly to accord with Spencer's view that it is not improbable that it was this book coupled with his dislike of the pontifical pose of Auguste Comte which gave him the idea of composing the Synthetic Philosophy.

"Spencer," Mr. Elliot tells us, "was not a metaphysician. On the contrary, he refers to metaphysicians with undisguised contempt." In another place he tells us that Spencer had a metaphysical doctrine of his own. It occupied, however, but a small and unimportant part of his philosophy, and is extraneous and unnecessary to the main argument. "The bulk of the Philosophy is devoted to problems of science, not metaphysics." In a sense we may agree, but reading Mr. Elliot's account of the philosophy one wonders whether Mr. Elliot's own view of metaphysics corresponds at all with anything that may have been in Spencer's mind. Spencer no doubt meant by metaphysics what Comte meant, a method of explaining things by hypostatising abstractions, but for Mr. Elliot metaphysics seems to be what we know about the unknowable. So he informs us that the specially metaphysical portion of Spencer's philosophy is Part I. of *First Principles* in the course of which Spencer manages to give us a great deal of information about the unknowable. Mr. Elliot is of course keenly alive to the absurdity, but it serves him as a stick to belabour "metaphysics". No doubt Mr. Elliot thinks he is using the term in the strict Aristotelian meaning, the science of what is beyond physics. But then in that case he must regard the remainder of Spencer's philosophy as within physics. This would hardly be a happy description of it, or one likely to satisfy Mr. Elliot even if the whole of science is included under physics. It is really a false division. There is every bit as much, or as little, metaphysics in Spencer's philosophy of the knowable as there is in his doctrine of the unknowable. The principles of Evolution and of Liberty are metaphysical principles. They may be based on scientific generalisations but they are not science either in matter or in form. The distinction which Mr. Elliot probably has in mind is that between a philosophical method in close dependence on experimental science and a philosophical method of pure ideal construction.

There can be no doubt that one great reason of Spencer's success was the magical effect of the word Evolution. Spencer employed it and formed his concept of it as a philosophical principle before Darwin propounded the theory of the origin of species by natural selection. The fierce controversy which raged round that theory for a generation and ended in its complete acceptance served Spencer well. The theory was itself a powerful confirmation of his philosophical principle. Yet it was not scientific considerations, nor generalisations, nor even speculations like those of Darwin, which led Spencer to his principle. It was something much simpler than problems of species or of heredity. He observed that the individual living thing, plant or animal, begins with a comparatively simple structure and becomes increasingly complex as it grows. He thought that in this observation there was revealed a principle of universal application, a principle which would account, not indeed for the absolute origin, but for

the present condition of the solar system, other solar systems and equally of the mind itself. This thought was expressed in the design with which the cover of his volumes was adorned in which was represented the seed unfolding its root and stem and leaf and flower, and the caterpillar passing through its stages to the perfect imago.

Spencer's really great work, as Mr. Elliot has shown us in his very clear and able account, is *The Principles of Psychology.* What makes this work so astonishing is its absolute originality. We have already observed that Spencer borrowed nothing directly from his predecessors, but in this case there were no predecessors from which he could have borrowed. A certain amount of physiology was available, but for his psychological facts and principles he simply set himself to study his own mental processes.

With regard to the philosophy generally Mr. Elliot finds that it suffers from one serious blemish, due to a scientific error which renders generalisations based thereon valueless. Spencer assumed that the growing differentiation or, to use his own terminology, the increasing heterogeneity from generation to generation was consequent on the inheritance of acquired characters. He assumed this simply because it seemed to him a natural inference from the facts, and because he could not imagine any other explanation of the evolution of special organs and special functions. Mr. Elliot surely overstates the case when he says in a sweeping assertion that science has shown such transmission to be impossible. What is certainly fact is that whether or not there may be cases of the inheritance of an acquired character, and whatever in such cases the conditions controlling transmission may be, the ordinary differences in the individual character of new generations are not the result of such transmission.

In conclusion, we would like to congratulate Mr. Elliot on his delightful manner, perfect lucidity, and sympathetic appreciation, in presenting to us this wonderful portrait of a wonderful man who accomplished a wonderful task.

H. WILDON CARR.

VIII.—NEW BOOKS.

Social Progress and the Darwinian Theory. By GEORGE NASMYTH. G. P. Putnam's Sons, 1916.

PACIFICISM is likely in war time to increase the number both of its friends and of its enemies; but the book before us is more likely to add to the latter than to the former, among those who may have the patience to read it to the end. They are not likely to be many, for there is little in it to encourage persistence. The style is without charm, the reasoning is weak, the tone is self-complacent. The views which it advocates are, if more amiable, certainly no less one-sided (or, as Dr. Nasmyth prefers to say, unilateral) than the 'philosophy of force' against which it is directed. If that philosophy is to find an effective critic, it must be in someone who understands the problem involved better than the author of *Social Progress and the Darwinian Theory*: one who does not assume the only alternative to an unqualified pacificism is a doctrine (which it may well be doubted whether any sane man ever held) that 'force' in the form of war is the sole source of all social progress. Like many pacificists, Dr. Nasmyth is ready to claim the primitive Christians as on his side. It is true that with them the ambition of military glory was replaced by that of martyrdom, and that they thought of themselves as engaged in a warfare not against flesh and blood but against principalities and powers, world-rulers of darkness and spiritual hosts of wickedness. Our author would probably regard these notions of the early Christians as incident to their lack of scientific culture; but they certainly tended to make their pacificism more inspiring than one which apparently regards 'the production of wealth' as the only legitimate object of human activity (see p. 387) and would substitute for the 'principalities and powers' of the Apostle, 'the physical environment'.

The first chapter on 'The Philosophy of Force' begs the question at the outset. It is assumed in it that 'war' is adequately treated as 'the use of force,' so that when Renan or Ruskin speaks of the services rendered by war to the moral development of the race, they are to be regarded as merely glorifying 'force,' whereas of course it was only because they saw something in war beside force that they expressed themselves as they did. The second chapter—on 'The Causes of its Success' (the success that is of the Philosophy of Force)—is very superficial. There is no sign that the writer perceives any difficulty in meeting the arguments of what he calls 'social Darwinism'; it is taken for granted that, except for the victims of an aristocratic prejudice in favour of 'force,' there is no problem at all. 'Social Darwinism' it is said (p. 54) 'ignores the physical universe.' It is with 'the physical' (that is apparently the non-human) 'universe' that man has really to struggle: his struggles with his fellow men are merely 'artificial'. One would suppose that animals were never led by their instinct to fight with others of their own species. There are many passages in the book which

make one wonder if the author has ever seen dogs growling at each other over a bone or heard the antlers of stags clashing in their battles for the mastery of the herd. Though 'tigers do not eat each other' (p. 68), animals of other species do; and on page 80 Dr. Nasmyth is compelled to admit that 'eating one another' which he has treated (on p. 74) as something which men do and the lower animals do not, is in its literal sense quite exceptional among human beings: while, if the phrase be used in a metaphorical sense, the comparison with the lower animals has no relevance.

In chapter iv. ('General Sociological Errors') biological analogies are applied with scarcely any discrimination to the discussion of war. There is no sort of comprehension shown of the idea of nationality. Because nationality is not, as some have asserted, the limit of association among men, it does not follow that it has no real or permanent significance. Indeed on page 204 it seems to be recognised as having some, since unions that run counter to it are reckoned as 'artificial,' including that of Alsace-Lorraine with Germany, which on page 128 had apparently been treated as 'natural'. To regard war as a process of dissociation *only*, as is done in this chapter, is certainly to misread history—the question, by the way, asked on page 101 about England and Scotland, is susceptible of quite a different answer from that which Dr. Nasmyth would give—and it is more than doubtful whether, as we are told, on page 106, 'without war the federation of the entire human race would have been accomplished long ago'. It is at least as probable that, without war, many peoples now in close relations would have remained in their primeval isolation from each other.

'The question' (we read on p. 309) 'is never raised Why are certain types superior? Why is man superior to the amœba? The superiority comes of course' (!) 'from the fact that man is an extremely complex association of millions of cellules, while the amœba is a monocellular being.' A little further on we read 'The elementary truth is hardly recognised that association is only a means serving to increase the vital intensity of the individual'. But, on page 315, we learn that 'every metazoa' (this is not a misprint; we read on page 318 of 'all the metazoas!') 'is an association.' It would seem then that *we* ourselves, the 'individuals' of common speech, exist in order to increase the vital intensity of each cellule among those which compose our bodies. This is indeed individualism run mad: and, despite its consistency, will scarcely be welcomed by many, who while ready to subordinate the interests of the State to those of the 'individual' citizen, would not be prepared to subordinate the interests of such metazoa (or, as Dr. Nasmyth would say, metazoas) as themselves to those of their component cells. Our author may consider them as but timid logicians on that account. But they might plead that he had surrendered ethics altogether to biology.

The ethics of Dr. Nasmyth are in fact an instance of the remoteness of his thought in general from the ideas which have been dominant during the last fifty years, that of evolution among the rest. 'War, slavery, animism' are regarded on page 133 as having always been pure evils 'if for no other reason than that they have represented a loss of time'. Dr. Nasmyth's position is that of a very uncritical utilitarianism. Morality is 'reinforced' by showing it to be, even in the form of altruism, 'identical with enlightened self-interest' (p. 364). 'Conscience is really a lightning calculator of enlightened self-interest' (p. 369). Motive goes for nothing 'If after no matter how long a circuit an action causes harm to its author, this action is immoral, but solely on account of the

fact that it causes harm to its author' (p. 352). The notion of obligation is altogether absent, and the author's views of authority and of punishment are such as one would under those circumstances expect.

The book is introduced by a preface from the pen of Mr. Norman Angell, of which it is sufficient to say, that it is as dogmatic and self-satisfied in tone as the rest, and in no way superior to it in style, accuracy of reasoning, or elevation of sentiment.

The horrors of the great conflict in which we are now engaged naturally incline men of good will to look with a favourable eye on any serious attempt to show that war need not be regarded as a necessary and permanent feature of human life: but this book is not such a serious attempt, for no effort appears to have been made by its author to discover the strong points of the view which he is combating or to escape from the limits of an abstract and pedantic doctrine wholly inadequate, as Bacon might have said, to the nature of things.

C. C. J. Webb.

Received also :—

M. E. Rocke, *The Coming of the World-Teacher*, London, George Allen & Unwin, 1917, pp. 242.

D'Arcy W. Thompson, *On Growth and Form*, Cambridge, University Press, 1917, pp. xv, 793.

Frederick A. M. Spencer, *Human Ideals*, London, T. Fisher Unwin, 1917, pp. vii, 280.

Cecil Leeson, *The Child and the War*, London. King & Son, 1917. pp. 69.

Charles Werner, *Etudes de Philosophie Morale*, Genève Librarie Kundig, 1917, pp. vii, 249.

Cosmos, *The Basis of Durable Peace*, New York, C. Scribners Sons, 1917, pp. ix, 144.

L. de la Vallée Roussin, *The Way to Nirvāna*, Cambridge, University Press, 1917, pp. x, 172.

Henri Waste, *Philosophy:* An Autobiographical Fragment, London, Longmans, Green & Co, 1917, pp. 274.

R. M. Maciver, *Community*, London, Macmillan & Co., 1917, pp. xv, 437.

Ernest Northcroft Merrington, *The Problem of Personality*, London, Macmillan & Co., 1917, pp. x, 229.

M. Flournoy, *The Philosophy of William James*, Authorised Translation by E. B. Holt and William James, Jun., London, Constable & Co., 1917, pp. vii, 246.

IX.—PHILOSOPHICAL PERIODICALS.

Philosophical Review. Vol. xxv., No. 6. **M. R. Cohen.** 'Jus naturale redivivum.' [Examines the historical, psychological, legal and metaphysical arguments against the theory of natural law, and concludes that an adequate science is possible through the co-operation of jurists and philosophers.] **A. H. Jones.** 'The Problem of Objectivity.' [The application of German method (criticism of categories) to British problem (of objectivity) has been made only twice: first and partially by Reid, secondly by the new realists. These thinkers affirm that mind is a relation (negation of ideas) and that reality is the product and function of thought (negation of substance). They may join hands with the teleological idealists.] **E. A. Rayner.** 'The Origin and Development of Persons.' [Critique of Bosanquet and Bergson. The course of evolution is from instinctive reaction to a material environment (fixed ideas) to knowing reaction to a spiritual environment (free ideas).] **L. P. Chambers.** 'The Non-Sensuous Knowledge of Reality: A Study in Neo-Realist Epistemology.' [Critique of Holt and Perry. We must admit a conceptual or non-sensuous knowledge of reality, and regard as the knower not the neural organism but the 'organism-environment complex'.] **C. E. Hooper.** 'The Relation of Personal to Cultural Ideas.' [Men can find the truth only collectively, according as groups of substantially like-minded scientific students are formed, and can make it only collectively, according as fuller agreement is attained by minds consciously directed to the goals of the good, the beautiful and the efficacious.] Discussion. **S. Barnett.** 'In What Sense Two Persons Perceive the Same Thing.' [Critique of Fullerton. General descriptions are not only products of thought but are also conditions of thought.] Notes. **C. A. Bennett.** 'Josiah Royce.'—Vol. xxvi., No. 1. **J. E. Creighton.** 'Prefatory Note.' [The number is to survey the progress of some main departments of philosophy since the foundation of the Review in 1892.] **B. Bosanquet.** 'Realism and Metaphysic.' [The realistic movement which began in Germany and elsewhere about 1892 is related to the speculative philosophy which preceded it in the English-speaking world by its rejection of the epistemological doubt and its stress upon the metaphysical problem; a blending may be hoped for, which shall destroy the equivocation of the name Idealism.] **G. H. Sabine.** 'Philosophical and Scientific Specialisation.' [Up to about 1890 specialisation was rampant and idealism was unable effectively to organise scientific points of view. Intercommunication, now beginning, is shown mainly in the influence of biology on psychology and of psychology on philosophy.] **J. H. Tufts.** 'Ethics in the Last Twenty-Five Years.' [The genetic study of morality has furnished two important working conceptions: those of group life, and of the moral as an intimate inseparable part of the whole process of living. Ethics has also broadened by a return of interest to social, political and economic problems.] **M. F. Washburn.** 'Some Thoughts on the Last Quarter-Century in Psychology.' [Comparative psychology has developed reliable methods;

and there is good promise for vocational psychology, the psychology of advertising, mental tests (methods of correlation). Introspection has held its own (Meumann, Ach, Müller, the factual observations of Freud and Jung); allowing for individual differences, we may even trust it when uncontrolled by experiment.] **W. B. Pillsbury.** 'The New Developments in Psychology in the Past Quarter-Century.' [Reviews the application of psychology to education, medicine, the lower animals, business. Within the science itself there has been no tendency towards a common standpoint, though there is a leaning towards the dynamic explanation of mental activities and accomplishments.] Reviews of Books. Notices of New Books. Summaries of Articles. Notes.

Psychological Review. Vol. xxiii., No. 6. **R. Pintner and D. G. Paterson.** 'A Measurement of the Language Ability of Deaf Children.' [Test of 570 deaf pupils by Trabue's language scale, which proved satisfactory. Those who lose their hearing adventitiously before the age of four or five are not superior to the congenitally deaf.] **H. D. Marsh.** 'Individual and Sex Differences brought out by Fasting.' [Two subjects reduced food for a week, fasted for a week, returned to normal conditions during a third week. Sensory functions: sensitivity to pain and perceptivity for dots increases, for touch decreases, in male; conversely in female. Intellectual functions: memory improves in female, deteriorates in male. Feeling: in general a poor index of performance, less so for male than female.] **K. S. Lashley.** 'The Human Salivary Reflex and its Uses in Psychology.' [Summary of work done on the direct and conditioned reflex in man. The latter is important for the analysis of the mechanism of learning, and probably for emotive theory.] **G. van N. Dearborn.** 'Intuition.' [Intuitive capacity (involving inference and comprehension, emotive and instinctive reaction) depends on the dynamic relations symbolised and indexed by kinaesthesia, the dynamic mental warp of our behaviour-fabric.] **J. V. Haberman.** 'The Intelligence Examination and Evaluation: a Study of the Child's Mind, ii.' [Outlines and discusses tests for comprehension.] **B. Ruml.** 'The Measurement of the Efficiency of Mental Tests.'] [Shows how to weigh the relative accuracies of selection of the good or poor members of a group, and to determine the best percentage to be included in these part-groups.] **A. P. Weiss.** 'Pendulum and Interval Timer.'

Journal of Philosophy, Psychology and Scientific Methods. xiii., 21. **R. B. Perry.** 'The Truth Problem,' ii. [Considers "that sort of truth which is a function of mind and . . . brings us into the province of psychology". This "is the correlative of error". It occurs in hypothesis which implies an intending mind "which assigns a value to a variable, and thus brings together a general function and a particular case of it". It involves also an "attitude of committal or belief," and a factual test which is external to the act of belief".] **A. O. Lovejoy and E. G. Spaulding.** 'Topic for Discussion at the 1916 Meeting of the American Philosophical Association.' [Concerning the distinction of 'mental' and 'physical'.] xiii., 22. **J. B. Watson.** 'Behaviour and the Concept of Mental Disease.' [The writer is "convinced of the truth of Freud's work," but thinks it is "a mistake for as useful and fascinating a growth as psycho-pathology to allow itself to become encrusted with the barnacles of an outgrown psychological terminology," and that 'psycho-neuroses' may be adequately regarded as 'habit-twists'.] **H. M. Kallen.** 'Philosophic Formalism and Scientific Imagination.' [A (very destructive) review of E. B. Holt's *Concept of Consciousness*.] xiii., 23. **G. A. de Laguna.** 'Sensation and Perception,' ii. [Points

out that 'sensations' have "no direct relationship to behaviour," whereas perception is "the apprehension of an *object*," and therefore "stands in a determinate relation to behaviour," which is "the very essence of objectivity". The psychologist can 'analyse out' his 'sensations' only for this reason, *viz.*, because the sensation-qualities of objects are not practical cues, and "there is no sort of behaviour which is demanded by blue objects, or by objects which feel 'cold' or taste 'sour'." However in perception "the properties of the complex are not conceivable as resultants or products of the joint activity of the constituent sensations," and "no scientific doctrine was more futile or barren of results than this doctrine that the percept is a complex of sensations". The truth is that 'sensation' is "nothing more nor less than an hypostatized quality," and that "the same objective stimuli are being responded to differently" when we perceive or analyse out sensations. Moreover all responses are never to a single stimulus but always to a situation. These results have an important bearing on the notions of psychological 'analysis' and introspection, and on the problem of meaning.] **P. Hughes.** 'The Two Poles of the Philosophical Sphere.' [The two centres of interest are the eudaimonistic and the dialectical, the latter of which is admitted to be "selfless and disinterested," but should be required to substantiate its claim to superiority.] **M. R. Cohen.** 'The Use of the Words Real and Unreal.' [A critique of W. H. Sheldon and R. B. Owen (*cf.* xiii., 12), which points out that 'the question is primarily practical, *i.e.*, one of linguistic policy.'] xiii., 24. **H. C. Brown.** 'Language and the Associative Reflex.' [Argues that the history of language indicates that "knowledge would be nothing but a preparation of reflex connexions between this class of objective responses such that, given a certain situation, the right reflexes would take place to precipitate suitable action as their final outcome when the 'train of thought' preceding the action had been brought to an end".] **E. B. Titchener.** 'A further Word on Black.' [Reply to Prof. J. Ward.] **N. Wiener.** 'Mr. Lewis and Implication.' [Defends Russell's symbolic logic against Lewis' criticisms, but admits that "it is unable to distinguish between the notion of truth, pure and simple, and the notion of that truth which results as a consequence of the laws of Logic alone," *i.e.*, that it is purely formal.] Report on the New York Branch of the American Psychological Association, by A. T. Poffenberger. xiii., 25. **W. M. Urban.** 'Knowledge of Value and the Value Judgment.' [Continues paper in xiii., 17. Value being "a wholly unique and irreducible form of Objectivity" involves the two formal *a priori* value propositions (1) that "to every object positive or negative value must be predicated"; (2) that "every value stands in a system of higher and lower," so that "an isolated value is a contradiction in terms". It is admitted that the belief that value does not "come and go with subject that feels it" is hard to reconcile "with the equally certain proposition that value is always *for* a subject," and argued that a value-judgment is certainly not a truth-judgment. The converse view is left over for a subsequent article.] **J. B. Pratt.** 'The Confessions of an Old Realist.' [Maintains that "the antithesis between the mental and the physical is the most absolute antithesis within the realm of being," and defends the correspondence theory of truth, taking the image as the means of perceiving the object.] xiii., 26 is devoted to the work of **Charles Sanders Peirce. J. Royce** and **F. Kernan** regard as his leading ideas, the evolution of the laws of nature, his insurance theory of induction, the objectivity of chance, and his account of intuition. **J. Dewey.** 'The Pragmatism of Peirce.' [Distinguishes it from that of James. It is a doctrine about the meaning of objects, and so quite literally 'pragmatism'. It is less nominalistic than James, and lays

more emphasis on method. But "both Peirce and James are realists". It is finally suggested that "a large part of our epistemological difficulties arise from an attempt to define the 'real' as something given prior to reflective inquiry instead of as that which reflective inquiry is forced to reach."] **C. Ladd-Franklin.** 'Charles S. Peirce at the Johns Hopkins.' [Reminiscences of 1880-1881, and letters.] **J. Jastrow.** 'Charles S. Peirce as a Teacher.' [Reminiscences of 1882-1883.] **M. R. Cohen.** 'Charles S. Peirce and a Tentative Bibliography of his Published Writings.' [Also traces to Peirce's practical experience of the variations of measurements his scepticism about the exactness and constancy of the laws of nature.] xiv., 1. **W. Fite.** 'Moral Valuations and Economic Laws.' ["The economic world is the world of distant acquaintance" in which the parties have not enough knowledge of each other's personality to introduce moral considerations into their dealings. Hence "economic laws are statements, not of what men plan, nor even of what they desire, to do, but of what actually happens as the result of their actions". But "the economic relation is being constantly transformed in the direction of moral obligation by the simple fact of consciousness of the relation. Here, too, "when we discover a law of human nature, we are, by the very fact of discovery, placed in a position to say whether the law is to continue to prevail—the dominion of the law is dissolved by the consciousness of the law". This is strikingly illustrated by the discovery of the Malthusian law of population which "began to lose its force as soon as it was formulated and precisely as the result of being formulated."] **F. H. Giddings.** 'The Method of Absolute Posit.' [Criticises C. J. Keyser's *The Human Worth of Rigorous Thinking*. "It is a creation not of Reason (the relation maker), but of that Pure Spirit which is the Will to Create, emancipated at last from conceptual necessity as from bondage to sense."] xiv., 2. **C. W. Cobb.** 'Relativity.' [An amusing paper which points out that of the two important questions about relativity—(1) 'do the laws of relativity hold true in the physical world?' and (2) what, mathematically, are they? the second has priority. Mathematics is defined as "the science of arranging statements in consistent systems," and should state its assumptions clearly. "But the mathematician is not a fatalist, and his procedure has the element of safety that if he does not like the conclusions, he is at liberty to change the assumptions." It is then shown that relativity rests on the assumption that "the observed velocity of light is always constant, independent of the motion of the observer and the source of light". This is of course arbitrary, but it entails a change in the meaning of 'miles' and 'second' in the formula for the velocity of light, which "do not have their old meaning if one is in motion, but return to it if one returns to rest".] **E. S. Abbott.** 'The Dynamic Value of Content.' [Holds that in the relation of body and mind there is a triple series to be considered, *viz.*, neural process, psychic process, and psychic content, the last though inseparable from the second, being perfectly distinguishable, because the same process of cutaneous stimulation may have successively the different contents 'warm,' 'hot,' 'pain,' while the process can be retarded or accelerated without change of contents.] Report on the 25th Annual Meeting of the American Psychological Association.

Archives de Psychologie. Tome xvi., No. 1. **C. Cailler.** 'L'influence du facteur a priori dans l'évaluation de la probabilité des causes.' [To ascertain *a posteriori* the probabilities of the various causes that may have contributed to a given effect, we must know all the possible causes, their relative frequency of action regardless of effect, and the relative facility with which they produce the effect in question.] **M. Evard.**

'Le test d'association-couple à l'école primaire.' [A retesting of boys of nine after a year's interval shows intellectual retardation due partly to physical growth, partly to the war and the economic crisis.] **A. Descœudres.** 'Couleur, position ou nombre? Suite des Recherches expérimentales sur le choix suivant l'âge, le sexe et l'intelligence.' [Experiments on children and adults, of both sexes, normal and abnormal. In the gross, colour falls with age; position rises slowly and evenly, with a drop at adolescence; number keeps the same course throughout, with a rise at adolescence.] **E. Claparède.** 'Profils psychologiques gradués d'après l'ordination des sujets, avec quelques mots sur l'utilité des profils en psychologie légale.' [Combines Galton's principle of the ogive with Rossolimo's of the psychological profile.] Recueil de faits: documents et discussions. **C. Werner.** 'XIe Réunion des philosophes de la suisse romande, Rolle, 22 juin 1916.' **J. L. des Bancels.** 'La theorie du jeu: un précurseur de K. Groos.' [Magendie anticipated Groos' theory.] **A. Lemaitre.** 'Symbolisme hallucinatoire et incomplétude.' [A boy of fifteen has fragmentary hallucinations, in accordance with the mental incompleteness of his home life.] **A. Descœudres.** 'Constance des résultats psychologiques dans les expériences de témoignage.' [Agreement with Stern.] Bibliographie.

"Scientia" (Rivista di Scienza). Series ii. Vol. xx. October, 1916. **J. W. Gregory.** 'Fiords and Earth Movements.' [On the theories of the glacial or other origins of fiords.] **R. Anthony.** 'Le mécanisme de l'évolution humaine.' [Sketch of the mechanism by which the human type has been built up at the expense of an ancestral arboreal type.] **E. Rignano.** 'Il ragionamento "intenzionale". Parte IIa: Il ragionamento metafisico.' [Metaphysical reasoning is, like dialectic (considered by Rignano in the preceding number of *Scientia*), what the author calls 'intentional' (*i.e.*, works for a desired end), but, whereas dialectic considers only particular phenomena, metaphysical reasoning takes into account the whole universe or large portions of it which, directly or indirectly, may have relations with the destinies or the highest ends of the human race. Theological metaphysics (the fundamental error of Cosmo Guastella's great *Filosofia della Metafisica* of 1905 is to have given a too great importance to the purely intellectual factors, while by far the greatest part is played by the affective factors); Metaphysics proper; Finalism, animism, and vitalism; The function of language in metaphysical reasoning; Conclusion, positivism and metaphysics.] **Sir T. Barclay.** 'The Hague Court of Arbitration.' [Since 'to sneer at . . . international law generally because the most terrible war the world has ever seen has broken out in spite of it is just about as reasonable as to sneer at . . . the science of building generally because an earthquake has destroyed some of man's finest work,' the author proposes 'to assert the unqualified conservation and operativeness of International Law, of Arbitration as established by the Hague conventions and by treaties between and with our allies and with neutrals, and of the Hague Court, just as they stood before the war, in spite of violations on all hands by belligerents of almost every rule which had been laid down by Statesmen and Jurists for the humanising, so far as it can be made humane, of so insensate a survival of barbarism as war.' The point of the article seems to be expressed by the author's words: 'In none of the wars which have been waged since the Hague Court was instituted, has there been any possibility of recourse to it. It is and remains a Court for the determination of cases in which there are disputed questions of right and damages, questions in which rules of law and justice are applicable, and in which the parties seek, in good faith, an

honest solution. And in spite of all the wars which have disgraced the present generation of mankind, its power, utility, and authority, as at present constituted, stand undiminished.' Finally, the author expresses some pious hopes of the evolution, 'out of the Hague Court and its further developments, of some super-judicial institution,' and so on. 'Yet we must not let ourselves be deluded by any extravagant hopes.' Possibly the reviewer may be allowed to remark that the science of building seems to have a much closer connexion with earthquakes than the author thinks the Hague Court has with war: it would seem to be more to the point to say that to sneer at the Hague Court would be just about as sensible as to sneer at a well-conducted and useful cookery class for not departing from its proper sphere so far as to prevent earthquakes happening. It is surely part of the business of the science of building to take possible earthquakes into account, at least in those countries in which they are likely to happen; although the science of building is not meant to prevent earthquakes. But for our purposes of illustration it should be noticed that cookery classes are meant neither to prevent earthquakes nor to preserve our property and lives from destruction by them; just as the Hague Court presumably is not meant either to prevent such wars as this nor to prevent destruction by war.] **A. Galante.** 'La Chiesa e le Chiese nella guerra attuale.' [The present war is not only a conflict of arms, but also a conflict of minds and of consciences. The religious consciences of belligerents have not been able to stand firm againat political and national currents; the Churches of the various belligerent States all accept the war. For the Pope the situation is much more difficult and delicate than it has ever been before, and the Universal Catholic Church must meditate about its spiritual reconstitution after the war. This will be a very great problem.] Book Reviews. [Among other almost equally interesting ones we may point out those of Pierre Duhem's *La chimie est-elle une science française?* Paris, 1916 (which is not a controversy about French and German contributions to the actual state of chemistry, but is concerned with strictly historical and objective questions); T. E. Lones's *Aristotle's Researches in Natural Science*, London, 1913 (Aristotle was far greater as a biologist than as a physicist; 'all his philosophy is of a biological nature, and that is what constitutes its greatest strength'); G. Jouveau Dubreuil's *Archéologie du Sud de l'Inde*, Paris, 1914; J. Baillet's *Introduction a l'étude des idées morales dans l'Égypte antique*, Paris, 1914; J. Baillet's *La régime pharaonique dans ses rapports avec l'évolution de la morale en Égypte*, Paris, 1913; U. von Wilamowitz-Moellendorff's *Reden und Vortrage*, Berlin, 1913 (on the history of Greek religion); and S. Moliner's *Les Maisons sacrées de Délos au temps de l'indépendance de l'île*, Paris, 1914.] Review of Reviews. Chronicle. French translations of articles in English and Italian. Series ii. Vol. xx., November, 1916. **E. Bouty.** 'Le rayonnement noir et les quanta. Ière Partie: Le rayonnement noir.' [A sequel to the same author's studies (*Scientia*, March and April, 1916) on the kinetic theory of gases. Attempts to show what was the origin of the theory of quanta, the advances that physics has made owing to it, and the great difficulties that it leaves unsolved. A second part will give an account of the attempts, by means of the hypothesis of quanta, to put theory into agreement with experience.] **E. S. Russell.** 'The Influence of the Theory of Evolution on Morphology.' ['The history of animal morphology may perhaps best be treated as being essentially the history of the reaction and antagonism of two frames of mind, two attitudes to the problems of form, which may be distinguished as the synthetic or functional and the abstract or formal.' The evolutionary morphology of the second half of the nineteenth century partook much

more of the formal period of the great outburst of transcendentalism at the beginning of that century than of the predominantly functional period of the pioneer work of Aristotle and the great Italian and French anatomists of the sixteenth to the eighteenth centuries. 'The transformation of morphology from a comparative to a causal science did not take place . . . until the end of the century, when some progress was made towards an understanding of the relation between individual development and ancestral history, particularly by Roux and Samuel Butler, working with the fruitful Lamarckian conception of the trans forming power of function.'] **A. Anile.** 'Il cervello dell'uomo preistorico.' ['The evolutionary process of our ideal activity enters into the rhythm of a differentiation, of a functional specification acting on pre-formed tissue, as is the case with all other evolutionary processes of the organic world.'] **E. Rota.** 'Che cosa deve l'Europa alle piccole nazioni.' [Sketch of the part played by the small nations in ancient times, in the Middle Ages, and in modern times.] **H. Goudy.** 'The War and International Law.' ['The rules fixing the inviolability of neutral territory, the treatment of non-combatants in conquered territory, the treatment of prisoners of war, the immunity of non-fortified or undefended towns from bombardment, the immunity of churches and hospitals from bombardment even in defended places, the obligation of visit and search of neutral vessels before seizure or destruction, the observance of the distinction between contraband and non-contraband goods as regards maritime capture, the conditions of effectivity of blockade, have all been to a greater or less extent disregarded by the several belligerents.' Endeavour to prove thoroughly that the two grounds on which belligerents have generally sought to defend or excuse their violations of International Law are *military necessity* and *reprisals*. 'A meaning has been given to these two familiar terms by the belligerents which, if admitted, would involve the total collapse of International Law as removing the very foundations on which it is built.' The author thinks that 'it is not permissible to doubt that' International Law will survive the war, but that 'if it is to have any real authority and secure observance of its mandates it must obtain some sort of sanction. How is this to be obtained? It can of course be so only by general agreement among nations . . .' And so on. Quite good, especially the last part.] Book Reviews. Review of Reviews. Chronicle. French translations of articles in English and Italian. Vol. xx., December, 1916. **A. Favaro.** 'Se e quale influenza abbia Leonardo da Vinci esercitata su Galileo e sulla scuola galileiana.' [Criticism of Pierre Duhem's thesis that the new ideas which Leonardo spread about so widely by his notes were not unknown to his successors: stolen by many authors, these ideas inspired the writings of the thieves on statics and dynamics during the whole of the sixteenth century and thus influenced the seventeenth. Favaro gives reasons for not believing either in a regular diffusion of Leonardo's manuscripts or in the existence of a 'Vincian Academy'; but does not wish absolutely to exclude the possibility that certain learned men of the sixteenth century might have seen some of Leonardo's manuscripts when they were dispersed long after their author's death, and might have published some of Leonardo's discoveries as their own. In this article the author gives a detailed examination of possible influence in the cases of Galileo and his School, and Benedetto Castelli in particular, and proves that they were not open to the charge of plagiarism. The author adds that the publication of the *Opere* of Galileo in the National Edition (edited by Favaro himself), that was accompanied by all Galileo's fragments, which often clearly show the evolution of Galileo's thought, furnishes an indirect proof of the originality of his work. A very learned and convincing article.] **E. Bouty.** 'La

rayonnement noir et les quanta. Deuxième partie : les quanta.' [The theory of quanta is an attempt to get out of the difficulty, with the least possible damage, into which we have been led by an apparently rigorous application of a collection of mechanical or physical principles universally admitted hitherto. Mathematically speaking, the only essential change introduced by Planck into the analysis of his precursors was to substitute, for an integral which becomes infinite, a discontinuous sum of elements grouped in such a way that it remains finite. When this substitution is made, nothing more is changed, and the principles of mechanics and physics are applied. '. . . Theories pass but facts remain. The facts that a theory has once connected are connected for ever, and this connexion serves to test the new and more perfect theory which the progress of the sciences substitutes for the superannuated ones that have become too narrow.'] **W. Bechterew.** 'La localisation des psycho-réflexes dans l'écorce cérébrale.' [In the author's *La psychologie objective* (Paris, 1913), he concluded that the psychical or rather neuro-psychical activity of men and animals is nothing else than the aggregate of associated reflexes which are established in them by education and experience, and, according to circumstances, are found in the state of inhibition or reviviscence. The impulses which give rise to the reproduction of these reflexes are associated in the cerebral cortex. The author then passes to the problem of the localisation of these associated reflexes in the brain. For the primitive division of the cortex into sensitive, motor, and psychical centres, the author substitutes another: into sensori-motor regions possessing also psychical functions. Each of these regions serves for the establishment of associated reflexes in connexion with the others, and principally with the region of the musculo-cutaneous sense by which are established the more distant reflexes such as those of locomotion and those which answer to the general needs of the organism.] **Sir A. Hopkinson.** 'The Sanction in International Law.' ['The idea of framing a complete International Code, attempting in minute detail, by elaborate provisions, to regulate the rights of nations in peace and in war, has utterly broken down. . . . To be of any value International Law must be capable of development and adaptation to new conditions. . . . The deeper question is whether serious disputes between nations are to be settled regularly by law, and by some tribunal, or by resort to arms, and whether any power will ever exist which will prevent a great military nation not only setting itself deliberately above all conventions, all rules of received International Law, but also flagrantly outraging every sentiment of humanity, denying by its acts the very idea of Justice. . . Without going to war the neutral nations by joint action might have used a sanction to enforce some regard for neutral rights, imposed a penalty on their flagrant violation, which might prevent future outrages. While a single German soldier remains in Belgium with the acquiescence of neutral Powers it is useless to talk of the reign of International Law.'] **A. Pillet.** 'Le problème de la guerre.' [The problem referred to only dates from the present war: it is the problem of military service. 'The idea of equal obligation on all citizens for military service is a good example of the harmful influence which the strict application of a principle just in itself may exercise. . . . The Europe of to-day well knows that it is by force alone that nations will obtain respect for their existence and for the limited independence which they enjoy. Once again the German lesson will have taught this truth to Europe. It will not lay down its arms until the ruin of the German Empire is brought about: this ruin is the only rational solution of the problem to which German ambition has given rise.'] Critical note. **F. Van Langenhove.** 'Les théories et l'œuvre sociologique d'Émile Waxweiler.' [Two essen-

tial features characterise Waxweiler's (1867-1916) sociology: its realist inspiration and its synthetic bearing.] Book Reviews. [Amongst others it is interesting to notice that a French translation (Paris, 1910) has been published of Leonardo da Vinci's *Traité du paysage*, and that L. Beltrami has written (Milano, 1916) a book *Leonardo da Vinci e Cesare Borgia*. There are also reviews of L. Hubert's *L'effort brisé* (Paris, 1915), H. Hauser's *Les méthodes allemandes d'expansion économique* (Paris, 1915), and F. Y. Edgeworth's *On the Relations of Political Economy to War* (Oxford, 1915).] Review of Reviews. French translations of articles in Italian and English. Index to vol. xx. Vol. xxi., January, 1917. **Ph. E. B. Jourdain.** 'The Function of Symbolism in Mathematical Logic.' [First refers to articles by Rignano and Peano in *Scientia* for January, February, March, and September, 1915. 'The proper reply to Rignano seems to be that, until comparatively lately, symbolism in mathematics and the algebra of logic had the sole aim of helping reasoning by giving a fairly thorough analysis of reasoning and a condensed form to the analysed reasoning, which should, by suggesting to us analogies in familiar branches of algebra, make mechanical the process of following the thread of deduction; but that, on the other hand, a great part of what modern mathematical logic does is to increase our subtlety by emphasising *differences* in concepts and reasonings instead of *analogies*.' The ideas of Leibniz on the nature of symbolism, the early symbolic logicians, the work of Peano, Frege, Russell, and Whitehead is shortly described in the articles; but the part of most philosophical interest is in the first section. It is a confusion of thought that has led many to believe that mathematical logic seeks to displace the free spirit of discovery or invention in mathematics. Mathematics uses a form of 'economy of thought': 'In our efforts to extend the dominion of science we find it necessary to arrange so that those trains of reasoning which have been already performed and which require no special talent to repeat, but merely memory, should be reproducible without any mental effort, so that we may reserve all our mental energy to subjugate the many new and difficult problems we meet. It must be remembered that the intellectual intuition which perceives the truth of logical laws in their simple but absolutely universal form is unable, owing to our limitations in memory and visualising power, to perceive the same truths in more complicated forms.' This 'economy of thought' is a maxim for the process of discovery, and has no logical connexion with what is discovered. 'What we discover is truth: how we discover it is a matter of psychology. . . . The conceptions of logicians or mathematicians are tools which are useful for approximate descriptions of the changeless world of truth, but they are formed by us. *Concepts*, on the other hand, are, in my use of the term, the entities of which *conceptions* are the—often blurred—images in our minds. Thus the words "definite integral of a function" denote a concept of which the conceptions of Leibniz, Bernoulli, Euler, Cauchy, Riemann, Darboux, Jordan, and Lebesgue were mental images that got nearer and nearer the reality. Concepts are the combinations which are the subjects of definitions in mathematical logic. Definitions are theoretically superfluous, and the only trace left in them of the importance of the corresponding conceptions is that, when we have discovered—and we have logical criteria for telling us when we have done this—and expressed a concept, we can express more shortly' certain truths. Again, 'it is as important to distinguish between *conception* and *concept* as it is to distinguish between *sensation* and *sense-datum*.' It seems to the reviewer that the illustration of the distinction between concepts and conceptions is not quite happy: Riemann's definite integral is a logical definition of a concept, Lebesgue's integral is not more logically precise

but simply more general. A better illustration would be that of the different meanings which 'continuity' has had. There is a criticism of what might seem to be Russell and Whitehead's idea that 'importance' is a logical notion, and of Frege's and these writers' introduction of the psychological principle of 'assertion'. 'Since probably every inventory of the logical world that we shall ever make will be infected by psychology, the history of science is not superfluous even to the logicians.'] **H. von Zeipel.** 'Étoiles et molécules.' [Invisible molecules and the suns of the heavens both obey the same laws of dynamics and probability. Stars are the molecules of the universe. Exposition of some of the most remarkable analogies between the phenomena in these two domains. A long and interesting article, with some striking stellar photographs.] **B. Pirotta.** 'L'origine di nuove specie secondo la teoria dell' incrocio.' [Exposition of I. P. Lotsy's (critic of H. de Vries) theory of crossing to explain the origin of new species; there is no critical examination of the theory.] **Ch. Gide.** 'La Quadruple Entente économique.' [A very thorough examination of the programme of the quadruple economic Entente. It is interesting to notice that, quite by the way, it is mentioned that the article was written as far back as July 29, 1915.[**J. E. G. de Montmorency.** 'International Law after the War.' ['The influence of German materialism had shown itself in many directions in the decade preceding the war, but in no direction was this subtle and malign influence more dangerously manifested than in the region of law.' Examination of the German position with regard to law. Theory and principles of International Law, and application to the position after the war. 'When the peoples of the world realise the fundamental necessity of a Union which will not only preserve peace, but will facilitate trade, enlarge the confines of science, art, and religion, and stamp a new morality on the individual as well as on the nations, then the Entente will be followed by formal Union.'] Book Reviews. [The books on economics that are reviewed are R. Auspitz and R. Lieben's *Recherches sur la théorie du prix* (Paris, 1914, French translation), F. Oppenheimer's *L'économie pure et l'économie politique* (Paris, 1914, French translation), J. Singer's *Der Land der Monopole : Amerika oder Deutschland?* (Berlin, 1913), and R. Giffen's *Statistics* (London, 1913).] Review of Reviews. Chronicle. French translations of articles in English and Italian. It will be seen that *Scientia* continues its interesting and important programme of scientific synthesis. Vol. xxi., March, 1917. **G. Milhaud.** 'Descartes et Bacon.' [In spite of the essential opposition between these two thinkers which we are now inclined at once to put into words, Descartes does not seem to have been conscious of any opposition. We have, then, to explain the fact that the polemic of Bacon against any method *a priori* did not rouse Descartes. Indeed it seems either that Descartes had with Bacon more in common than we believe, or that he did not feel how far he was from him. There was, in fact, a great deal in common between the *intentions* of the two which might possibly have brought Descartes closer to Bacon; and, further, the rules for reaching the truth given by Descartes do not really differ as much as one is inclined to believe at first from the rules of Bacon. And all this is quite apart from such common points as the exclusion from physics of final causes and a fundamental mechanistic theory. However, it is true that Descartes gave the most important part in knowledge to the 'pure intuition' which directly seizes the truth, while Bacon certainly condemned all 'anticipations of the mind' throughout his writings. If Bacon had lived longer, he would doubtless have put forth all his energies to combat the intuitive method of Descartes.] **M. Cantone.** 'Sull, odierno indirizso degli studi fisici.' [A very interesting and broad survey of the

present tendency of physics. 'These studies were suggested by a reasonable scepticism as to the conservation of the matter of which a body is made up, and still more as to the invariability of its volume. We cannot deny, in fact, that chemical processes or mechanical actions or even a very feeble evaporation may alter the constitution of a body; but further, it is to be feared still more that gradual variations in the volume of a solid take place owing to a secular thermo-elastic change.'] **É. Rabaud.** 'La vie et la mort des espèces. Première Partie: La théorie classique des moyens de défense.' [The classical theory of 'means of defence' is anthropomorphic: life, it holds, is an incessant conflict of beings with each other and against their environments, and, since the various species to which the beings belong do not disappear, the individuals must possess efficacious means of defence. In another article the author will examine why it is that the enormous destructions of individuals do not have as a result a destruction of species.] **E. R. A. Seligman.** 'The Economic Prospects of the United States after the War.' ['The economic conditions of the United States after the war will differ in important respects from what existed previously; and these changed conditions, which will force the United States out of its shell of isolation, are pregnant of large political possibilities to not a few of the European nations.'] **V. Carpi.** 'La durata della guerra.' ['It is not the old principles that have been overtaken, but the fact is that the applications of these principles is being made in a larger and more complex medium, and thus more time is necessary. The war of the present time does not consist merely in the meeting in battle of soldiers and cannons, but it is the highest and most genuine expression of all civil forces.'] Book Reviews. [The reviews of books on questions on economics are of E. Salvi's *Storia del diritto di proprietà* (Milano, 1915); A. Segre's *Manuale di Storia del commercio* (Torino, 1915); E. Ciccotti's *Vecchi e nuovi orizzonti della Numismatica e funzione della moneta nel mondo antico* (Milano, 1915).] Review of Reviews. [This month all the articles reviewed deal with economic and political questions concerned with the war.] Chronicle. French translations of articles in Italian and English.

Zeitschrift f. Psychologie. Bd. lxxvi. Heft 1 u. 2. **H. Henning.** 'Der Geruch, IV.' [Smell is determined by the way in which the osmophores are grouped about the osmogenic radical or nucleus; the six psychological classes correspond, in fact, with six typical configurations of the molecule, and transitional odours with mixed configurations. The author further discusses the *minimum perceptibile*, the measurement of olfactory sensation (methods and instruments), the process of excitation by way of the olfactory mucosa, the smell of aquatic animals, the alleged degeneration of the sense in man, the aesthetics of smell, etc. A monograph is promised for the near future.] Literaturbericht. Bd. lxxvi. Heft 3 u. 4. **J. B. Rieffert.** 'Grundlegung einer psychogenetischen Theorie der Raumwahrnehmung.' [A logically derived and logically constructed theory. The writer begins with topogenic sensory elements which, under the mechanism of recognition, become individual (not yet logical) signs. The continuity of space perception, and the relations of quantity and similarity exhibited by special perceptions, are referred to processes of apperceptive and associative fusion and of attentional and partitive dissociation, themselves touched off by the spatial distribution of stimuli.] **G. Heymans.** 'In Sachen des psychischen Monismus. IV. Dualistischer und monistischer Psychismus.' [Becher's objections to a physiological theory of memory hold against a materialistic parallelism, but not against a psychical parallelism which makes psychical reality richer than its physiological reflection. Such a view does not imperil

the uniformity of nature, while it leads us positively to a psychological interpretation of the phenomena of loss of memory (old age, trauma).] **A. Pick.** 'Historische Notiz zur Empfindungslehre nebst Bemerkungen bezüglich ihrer Verwertung.' [An appreciation of Hughlings Jackson, who anticipated Poppelreuter's view of the isolated sensation, and the biological theory of perception represented by Wertheimer and Koffka. An illustration from pathology is afforded by the 'phantom' persistence of an amputated limb; Head's schema is an application of Jackson's principles.] Literaturbericht.

X.—NOTES AND NEWS.

MIND ASSOCIATION.

Rev. E. G. Braham, 100 Church Road, Horfield, Bristol, has joined the Association.

MIND

A QUARTERLY REVIEW

OF

PSYCHOLOGY AND PHILOSOPHY

I.—THE MEDIÆVAL DOCTRINES IN THE WORKS OF DONNE AND LOCKE.

By François Picavet,

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I.

It has seemed to me interesting to call the attention of readers of Mind to some recent works which have resulted from the classes and lectures of the Ecole Pratique des Hautes Etudes, Section des Sciences Religieuses, and the Faculty of Letters of the University of Paris.

For more than twenty-five years the Professor and students have united in undertaking firstly, the historical and impartial study of the mediæval philosophies; secondly, an examination of the sources of antiquity upon which the thinkers of the Middle Ages drew; and thirdly, the study of those philosophers and theologians who, from the XVII. century onwards, preserved or restored the doctrines of the Middle Ages.

From this last point of view attention has been directed to the men who continued to call themselves Scotists, Thomists, Lullists, Scholastics, preserving, with as much exactitude as possible, the doctrines of their predecessors. But most of all the object aimed at has been an examination of the philosophical or theological writers who are regarded as the masters of modern thought. If it is unquestionable that they

appealed to reason and science, that they paved the way for the advent of an essentially scientific philosophy, it appears not less incontestable that there has been continuity and not cleavage, evolution and not revolution, in the march of philosophical thought from the XVI. century to our own days.[1]

A number of works have been devoted to throwing light upon the restoration of Thomism in the XIX. century,[2] and the influence exercised by Roger Bacon from the XIII. century onwards, on exegetists and theologians, scholars and philosophers.[3]

Next it has been shown that Luther, who wished to break with the philosophy and theology built up around the Holy Scriptures by means of borrowings from the thought of the ancients, was only able to do so by having recourse to another philosophy, the Plotinian, which he found in the works of St. Augustine and Pseudo-Dionysius the Areopagite, by way of Eckhart, Tauler and the *Deutsche Theologie* which he edited twice.[4]

[1] The *Annuaire de l'Ecole Pratique des Hautes Etudes, section des Sciences religieuses*, published every year by the Imprimerie Nationale, Paris, gives the programme and summary of the lectures. See also François Picavet, *Essais sur l'Histoire Générale et Comparée des Théologies et des Philosophies Médiévales*, Paris, Alcan, 1913, 1 vol. in 8vo, viii-413 pp., especially the first two chapters.

[2] The question studied in the Classes (*Annuaire des Hautes Etudes*, and *Essais*, chaps. i. and ii.) has been treated in articles in the *Revue Philosophique*, 1892, 1895, 1896, 1902, 1908 and 1909; in the *Esquisse d'une Histoire Générale et Comparée des Philosophies Médiévales*, 2nd edition, 1 vol., 8vo, xxxiv-336 pp., Paris, Alcan, 1907 (chap. ix., "La Restauration thomiste au xix^e^ siècle," pp. 216-288); in the *Essais*, chap. xviii. ("Thomisme et Modernisme dans le monde Catholique," pp. 346-368).

[3] With regard to the Classes of the Hautes Etudes and the instruction at the Faculty of Letters, see the *Annuaires* and *Essais*, chaps. i. and ii. For works see *Essais*, chap. x., "Editions faites et à faire de Roger Bacon"; chap. xi., "Le Maître des Expériences, Roger de Maricourt," "L'Exégète et le théologien vautés par Roger Bacon"; chap. xii., "Jean disciple de Roger Bacon"; chap. xiii., "Quelques-uns de ceux que combat Roger Bacon," "Alexandre de Halès," "Albert le Grand," "S. Thomas"; chap. xiv., "Deux directions de la théologie et de l'exégèse catholique au xiii^e^ siècle," "St. Thomas d'Aquin et Roger Bacon". See also *Revue des Deux Mondes*, June 1, 1914, François Picavet, "Roger Bacon, La Formation Intellectuelle d'un homme de génie au xiii^e^ siècle," pp. 642-674, and François Picavet (in *Roger Bacon Essays, collected and edited by A. G. Little*, Oxford, 1914), "La Place de Roger Bacon parmi les philosophes du xiii^e^ siècle," pp. 55-88.

[4] See François Picavet, *Essais*, chap. iv., "Classification des Mystiques," pp. 95-115; chap. xv., "Une des Origines de la Réforme Luthérienne," pp. 295-309; Maria Windstosser, "Etude sur la Théologie Germanique suivie d'une traduction française faite sur les éditions originales de 1516 et de 1518," Paris, Alcan (thesis for the degree of doctor of the University of Paris).

Descartes has been studied in the Classes and in a number of memoirs or theses not yet printed. It has been shown that Descartes continues, against the adversaries of the immortality of the soul and the existence of God, the struggle urged by the Council of Latran against the Latin Averroïstic philosophers; that his doctrine relative to God recalls that of St. Anselm, of St. Augustine and of Plotinus; that the *cogito ergo sum*, the doctrine of extension and many others which originate in his system of philosophy have antecedents in the Middle Ages; that his natural religion, stripped of its theological part, is that of Voltaire, Rousseau, and the XVIII. century.[1]

By the comparison of texts relative to the Latin Averroïsts of the XIII. and of the XVI. centuries, of the "free thinkers" attacked by Calvin and Garasse, with the "esprits forts" of whom Bossuet and La Bruyère speak, and the little philosophers to whom Berkeley devoted his *Alciphron*, the doctrinal bond which exists between the heterodox thinkers of the XIV. century attacked by St. Thomas Aquinas, those of the XVI. century condemned by the Council of Latran, and those of the XVII. century and of the XVIII. who changed their name but hardly modified the original thought, was definitely proved.

Further, it was seen that Berkeley is the continuator of St. Thomas Aquinas and Descartes, finding in immaterialism a proof of the existence of God which recalls St. Francis of Assisi and Raymund of Sebunda.[2]

Further, Bossuet's *Discours sur l'Histoire Universelle* was studied in relation to St. Augustine in a memoir by Mr. George Hardy, published in the *Bibliothèque de l'Ecole des Hautes Etudes*, while his treatise on *La Connaissance de Dieu et de Soi-Même* was studied in relation to St. Thomas

[1] See *Annuaires des Hautes Etudes*, 1889-1913; *Essais*, chaps. i. and ii., chap. xviii., pp. 328-345, "Descartes et les Philosophies Médiévales": The supreme aim for him is to adjoin to a theology and philosophy the broad lines of which are already defined, new acquirements of knowledge ceaselessly augmented by means of observation, experiment and calculation. . . . It was not to make a revolution and to break completely with the past, it was to produce an "evolution which should mean for humanity, without entailing any loss whatsoever, the acquisition of new domains wherein progress seemed to him endlessly possible".

[2] See *Annuaires des Hautes Etudes*, *Essais*, chaps. i. and ii., chap. xvi., "Averroïstes, Libertius, esprits forts, petits philosophes du xiii^e^ au xviii^e^ siècles," pp. 310-327. See also *Esquisse*, chap. viii., "La raison et la science dans les philosophies médiévales," pp. 195-202, and "l'Averroïsme et les Averroïstes du xiii^e^ siècle" (memoir presented at the Congress of the History of Religion in 1900, "Revue de l'Histoire des Religions," 1902).

Aquinas, St. Augustine and Plotinus, in the courses of the school. The Jansenists of the XVII. century and Port Royal were compared with Gottschalk and his contemporaries in the IX. century; and Thomassin and Malebranche, and thereafter Marsilio Ficino were treated along with Plotinus. In dealing with the *Tractatus Theologico-Politicus*, Spinoza's conception of the Old and New Testaments was examined and compared with that of Christians and Jews from the XII. century to the XVII.; and it was noted well that his exegesis, anterior in the *Tractatus* to the *Histoire Critique du Vieux Testament* of Richard Simon, makes use of rules which have been followed by modern writers. A memoir of considerable size was composed on the general relations of reason and revealed religion in the works of Leibnitz, and another on the mediæval doctrines to be found in the *Nouveaux Essais*. Finally it has been shown very definitely, after Sainte Beuve, who in excellent fashion called attention to the fact, that Jean Jacques Rousseau reproduced, in his famous thesis in *Emile*, the advice given by Phavorinus of Arles to a mother for nursing her child, and that Rousseau transformed, not always happily, the ideas of this Gallic author of the II. Christian century.[1]

II.

In the Classes of 1913-14, an examination was undertaken of Locke's *Essays on the Human Understanding*, and it was clearly shown that his metaphysics and theology, essentially Christian, are original in this sense that he mingles mediæval doctrines with doctrines which he was amongst the first to expound. It was further noted that the *Nouveaux Essais* in which Leibnitz aimed at expounding and combating the theory of Locke, leaving out, as they do, all that most interesting part of his philosophy, give an incomplete and incorrect idea of Locke to those who have not studied the *Essays* themselves.

In a thesis for the Degree of Doctor of the University of Paris, M. Krakowski, who had attended our lectures and classes since 1911 and who, in a *Mémoire d'Etudes Univer-*

[1] See *Annuaires* and *Essais*, pp. 14, 29, 39, 51, 52 (Pascal made use, after St. Thomas and Raymund Lullus, of the *Pugio Fidei* of Raymund Martin), 56 (the New Academy from St. Augustine to the Abbé Foucher), 65 (l'Education à travers les âges); pp. 166-176 (chap. vii., Phavorinus d'Arles prédécesseur de J. J. Rousseau); and finally the *Revue Internationale de l'Enseignement*, 15th December, 1905, "Essai sur l'Education littéraire, philosophique et politique de Gambetta" (he studied Joseph de Maistre, Bossuet, St. Thomas Aquinas and the Thomists).

sitaires had made a study of Roger Bacon as precursor of Descartes and of Condorcet as regards the doctrines relative to the prolongation of human life, set himself the task of discovering the mediæval sources of the philosophy of Locke.[1] He made a careful study of the text; he consulted those historians who expounded or examined Locke's doctrines; he learnt to compare Locke's doctrines with the philosophy of the great thinkers of the Middle Ages, from Plotinus and St. Augustine to St. Anselm, Albertus Magnus and St. Thomas Aquinas. His thesis begins with an analysis of the works of Locke considered in chronological order. Next the author calls attention to what Locke owes, by the education he received in his family circle, at Westminster and at Oxford, to the philosophers and theologians of the Middle Ages. Then follows a discussion of the sources, classical and mediæval which are closely allied, of Locke's sensationalist theory, and an examination of what his doctrine of primary and secondary qualities owes to his predecessors. The author calls attention to the influence of William of Occam and the Nominalists on the solution given by Locke of the problem of general ideas. As regards the metaphysical and theological part of Locke's philosophy, M. Krakowski begins with the *Reasonableness of Christianity*, showing its relation to certain mediæval doctrines; he gives a brief statement of the theological doctrines, what the idea of God implies for Locke, how he establishes the existence of the Deity and how he determines His attributes, seeking enlightenment in the works of all who, from Plotinus to Marsilio Ficino in the West, have endeavoured to solve these questions essentially mediæval in origin. Finally he lays stress on the angelology of Locke, which he compares with that of his predecessors, beginning with Pseudo-Dionysius the Areopagite, and he explains how Locke, following Plotinus, and before Bonnet of Geneva, makes use of the analogical or comparative method in order to build up the ladder of beings in the intelligible world as in the sensible.

If then Locke is original in his study of the Sciences, in his knowledge of contemporary researches in positive science, and in giving a synthesis of present and past, he nevertheless sought inspiration in his predecessors of the Middle Ages, he acknowledged it and thus preserved a large part of their metaphysical and moral doctrines.

M. Krakowski might perhaps have quoted more frequently

[1] Edouard Krakowski, *Les Sources Médiévales de la Philosophie de Locke*, 1 vol. in 8vo, 216 pp. Paris, Jouve et Cie., 1915.

the text of Locke's writings, in defence of the conclusions he draws, instead of contenting himself with referring his readers to the works. These references are however sufficient. There are, perhaps, certain gaps, certain problems which are insufficiently studied. But it remains incontestable that Locke, over and above his Christian beliefs, has a system of metaphysics and a theology which have their roots in the Middle Ages.[1]

John Donne, who died in 1631, when Descartes was preparing his *Traité du Monde*, was a poet and the master of poets ; but at the same time he must be remembered as a theologian and preacher. By the education he received no less than by that which he gave himself, he belongs to that generation which, in considerable part, endeavoured to maintain in honour the doctrines of the school of Plotinus which Marsilio Ficino, Pico della Mirandola and many others expounded and recommended to the erudite and the thoughtful at the time of the third Renaissance. But the obscurity of Donne as poet is notable. The edition of his poems by Prof. H. J. C. Grierson, formerly of Aberdeen, now of Edinburgh University, with copious notes which we read while still in proof, has elucidated the text but has further shown the necessity of studying the theologian and preacher in order to understand the poet. This work has been undertaken by Miss Ramsay on the advice of Prof. Grierson, and this was the task she set before herself in coming to study under my guidance at the University of Paris, as Research Scholar and later Fellow, of the Carnegie Trust for the Universities of Scotland. This study has been completed after nearly five years of conscientious, intelligent and sustained work.[2] She has carefully studied the text of all

[1] I venture to refer the reader to *Esquisse*, chap. ii., " La Civilisation médiévale " (chronological limits, theological and philosophico-scientific character).

[2] M. P. Ramsay, *Les Doctrines Médiévales chez John Donne, le poète Métaphysicien d'Angleterre*, 1573-1631, thèse pour le doctorat d'Université présentée à la Faculté des Lettres de l'Université de Paris, 1 vol. 8vo, xi-338 pages. Oxford University Press, 1916. The divisions are as follows : Avant-Propos, Bibliographie, vii-xi. I^e Partie. Introduction, 1-33 (Donne founder of the Metaphysical School). II^e Partie. 34-125. Chap. i., " La Famille de Donne, Son Enfance et Son Adolescence, Ses premiers essais littéraires ". Chaps. ii. and iii., " Années de Travail littéraire ". Chap. iv., " Dernières Années ". III^e Partie. Chap. i., " De l'Univers ou de l'Être ". Chap. ii., " De Dieu ". Chap. iii., " Des Anges ou substances séparées ". Chap. iv., " De l'homme ". Chap. v., " De l'Union avec Dieu ou de l'Extase ". Chap. vi., " Des Sciences ". IV^e Partie. Conclusion, pp. 281-294. Appendices. Lists of authors mentioned in the various prose works.

Donne's works—many of which it is difficult to procure—and she has translated into French the most obscure passages, a work which shows how almost insurmountable the difficulties were at times. Her endeavour has been to discover the exact thought of this preacher and theologian in his function as poet, and she has sought to throw light on his thought by a comparison with that of his contemporaries and predecessors. Thus she has established the fact, not only that Donne followed, as did the Anglican Church in her *Via Media*, a path midway between Catholicism and the Calvinistic or Lutherian reform which endeavoured (without success be it said) to hold by the Holy Scriptures alone, but also that he stands, in metaphysics and in theology, much nearer those Catholic thinkers who followed Plotinus by way of Marsilio Ficino not less than St. Augustine and St. Thomas Aquinas.

The plan of the thesis is well conceived. Miss Ramsay has first dealt with the life and intellectual formation of Donne, recalling the character of his family (of which Sir Thomas More was a member, as well as various Jesuits who had a *rôle* to play in England) and the nature of his childhood and youth, his years of literary activity and his last years.

Miss Ramsay, in this second part of her book, has carefully collected all that can show us how Donne acquired those doctrines which he develops in his poetical and theological works.

In the third part she deals with the doctrines of Donne regarding the Universe or Being, God, the Angels on separate substances, Man, the union of the soul with God, and the Sciences. This is the most important part of Miss Ramsay's work, the part in which she shows very clearly that Donne remains closely attached to the great doctrines of the Middle Ages regarding God, immortality, and the aim to be pursued by man, which is to unite himself to God or the Absolute Perfection. Noteworthy are the pages dealing with the Schools, the Creation, especially the *ex nihilo* theory, evil and sin, miracles, our knowledge of God in this life, God the Creator, Redeemer and Consoler, the relations of angels with men, the origin of the soul, the part played by the body, death which is but a temporal separation of body and soul, ecstasy and the mystics, especially the Spaniards Ignatius de Loyola, St. Philip Nerius, St. Teresa, the mediæval attitude of Donne with regard to Science, etc., etc.

Donne, writes Miss Ramsay, in her conclusion, cannot pretend to originality as metaphysician and as theologian.

It is as moralist, as mystic and as poet, that his individuality reveals itself. He may thus be considered as an interpreter of his epoch. As a poet of real genius he is greater than his time; as priest he spoke a language and expressed a thought which must be understood by his contemporaries. And that thought is above all mediæval and Plotinian.

III.

Thus Locke brought about an evolution in English thought, he did not break its continuity.[1] Donne transmitted the philosophy and theology of the Middle Ages to his followers. The Cambridge Platonists or more accurately Plotinists, Cudworth whose work was studied after his death by those who like Locke were in close relations with his daughter Lady Masham,[2] lead on to Berkeley and his immaterialism so strongly tinged with Plotinism. If it is remembered further that men of science like Newton in nowise abandon the Christian beliefs or the philosophy and theology of the Middle Ages considered in their essential affirmations, one realises that Great Britain has preserved while it increased the moral patrimony transmitted to Christendom by the Græco-Latin world. And like France, in spite of apparent transformations, she has carefully striven that nothing should be lost of what she inherited from antiquity. These two peoples thus find themselves equally in possession of those principles which protect right, justice, Treaties and Conventions. It is not to be wondered at that in the tragic and terrible circumstances in which Britain and France found themselves in 1914, we should have formed the same judgment and taken the same resolutions which translated themselves in united action.

[1] Certain pages which Miss Ramsay devotes to Locke are noteworthy.

[2] M. Krakowski is right in recalling the *Discourse on Divine Love* translated by Coste, Amsterdam, 1705, in 12.

II.—SOCRATES AND PLATO.

By J. A. Stewart.

In the following observations I am making a belated attempt to meet an invitation which the Editor addressed to me long ago—that I would write an article founded on Prof. Burnet's *Thales to Plato.*

At this time of stress, writing for a Philosophical Review is difficult, and readers are likely to be easily bored with what is written. I am therefore confining my observations to one part of Prof. Burnet's book. They are concerned only with the latter part of the book which deals with Socrates and Plato, and are written, I ought to say at once, in order to raise a strictly practical question—How is Platonism likely to be affected in the near future, especially through the influence of his junior readers, by Prof. Burnet's treatment of 'The Doctrine of Plato' in this book?

Let me explain what I mean by 'Platonism':—

'The Doctrine of Plato,' expressing the comprehensive genius of the man, is, in part, a contribution to science and to scientific method, in part, a prophetic message. The name 'Platonism' I would reserve for the faith out of which 'The Doctrine of Plato,' as prophetic message, itself issued and to which it appeals. This faith is properly enough called 'Platonism' after its greatest exponent; but it has had in the past, and will, doubtless, have in the future, many great exponents—poets, saints, theologians, philosophers, even men of action—who never heard of Plato.

The faith out of which 'The Doctrine of Plato,' as prophetic message, issued, and to which it appeals, is a perennial source from which refreshment has been derived throughout the centuries, most abundantly at times of Crisis. And it has always been through channels opened by new interpretation that the refreshment has been derived; for it is just in timely new interpretation that the message of prophecy lives. Does Prof. Burnet's book aid the timely new interpretation in which the message of 'Platonism' lives?

This is by far the most important question that can be asked about Prof. Burnet's book in the estimation of those

who hold that the faith out of which Plato's message issued, and to which it appeals, is an essential element in the well-being of man, and now, at this time of Crisis, look to timely new interpretation of that message for aid in the work of religious and moral reconstruction which, they know, lies before the men of the New Age. And they know that, among the influences which keep this faith alive in timely new interpretation, there is no more important influence than that which comes, now and then, from some great scholar whose study, aiding and aided by his natural sympathy, has brought him, and, with him, his readers—more especially his young readers—into living touch with the personality of Plato or of some other great exponent of the platonist faith. It is always by entering into the mind of the Founder or Prophet of a Way of Life that his followers learn his message and are enabled to find for it the timely new interpretation without which it is a dead tradition. Among the young readers of Prof. Burnet's book are some, we may assume, who are destined to become influential expositors of 'The Doctrine of Plato' for the English-speaking World in the New Age which the Great War has inaugurated. Does Prof. Burnet's book bring these young readers into the presence of Plato himself by exhibiting his Doctrine as that into which he, being a Man of Genius, has put the whole of himself?

I.

Let me recall, with the help of some notes taken at the time, what I thought after finishing my first reading of Prof. Burnet's book: "Here," I said to myself, "is a book about Plato which places him in his environment, social, literary, philosophical, as no book has ever placed him before, and, in so doing, incidentally makes obsolete a good deal of what has been written about him, in this country and abroad, by the most eminent hands. And yet the very thoroughness with which Prof. Burnet fills in 'environment' round Plato makes me feel anxious for the young reader. Plato is one of those men of creative genius, who make their environment rather than are made by it: Does Prof. Burnet, in filling in environment, take sufficient account of the creative genius of Plato? Will young readers see Plato himself behind the dazzle of the innumerable separate influences which rain in upon him from the environment and are reflected back from his surface, as from a mirror, into their eyes as they read Prof. Burnet's pages? My fear is that they will find it difficult to see a definite personality acting singly from within,

easy to acquiesce in an indefinite 'some one' influenced by circumstances from without. Of course the more active-minded among them will be unwilling to acquiesce in such a 'some one'. They will not be satisfied until they have discovered, or think that they have discovered, an operative personality at the centre of the environment supplied by Prof. Burnet's learning. Will they find in Prof. Burnet's learning a guide to the discovery of an operative personality? It seems to me that Prof. Burnet's treatment of the environmental factor is so elaborate, and his treatment of the organic factor so slight, that his active-minded junior readers may (I do not say, will) be led, by the disparity of treatment, into misadventure. It would, indeed, be a serious misadventure if the very circumstantiality of the environment supplied by Prof. Burnet's learning were to invest with a reflected verisimilitude, in the eyes of young readers, some figure environed, some figure of 'the only Plato logically possible in the environment described by Prof. Burnet,' who was, after all, a Plato constructed unwittingly by these young readers themselves out of that environment—a mere double of that environment, that environment personified, that environment 'writ small'.

"The danger, in fact, which I fear for young readers of Prof. Burnet's book is that of failing to see that, great as the book undoubtedly is, it is—so far as it is concerned with Plato—what I would call a half-book. It is a great book of *ἱστορία* which waits for its philosophical complement in some great book of *ποίησις*, or, failing that, its psychological complement in some book which shall make a serious attempt to bring modern methods of observation and interpretation to bear upon the mind of Plato as revealed in his writings. For the philosophic touch of *ποίησις* Prof. Burnet's *ἱστορία* may have long to wait: indeed, may never receive it; for the time is perhaps past for the creation of a great Portrait of Plato in which some philosophic artist's shaping Spirit of Imagination should represent the Master as himself interpreting his own Doctrine afresh to the men of a new Renaissance and as throwing the weight of his personality into the task of bringing that Doctrine, freshly interpreted, home to their understandings and hearts as a rule of life: the time for this is perhaps past: at any rate, such *ποίησις* can come only *θεία μοίρᾳ*, if it come at all. On the other hand, the control of Prof. Burnet's *ἱστορία* by psychological examination of Plato's mind conducted according to modern methods is already practicable. I feel sure that, in the absence of some great Portrait of Plato, as ideal as the shaping Spirit of Imagina-

tion could make it, it is mainly to such psychological examination that one must look for the means of forming, what one misses in Prof. Burnet's book, an adequate conception of Plato himself as a personality operative at the centre of the environment so fully supplied by the book."

This, in substance, is what I thought when I finished my first reading of Prof. Burnet's book.

II.

My subsequent readings confirmed the impression left by my first reading. I now felt sure that the more active-minded of Prof. Burnet's junior readers would be obliged, by the very circumstantiality of the environment supplied, to construct, each one for himself, a Plato out of that environment, that is, to infer a Plato from it—the only Plato logically possible, given that environment: and this would be, of course, an abstract, an impersonal, Plato. I felt sure also that the best of them would be disappointed with such a Plato. "This is not the sort of Plato," they would say to themselves, "one expected the author of the *Phaedo* to be." Then, pursuing my diagnosis of the junior reader's mind, I figured him as comforting himself for his disillusionment with the reflection "that, after all, the old view which held Plato to be no mere *partus temporis*, but one of the great original thinkers of the world, was 'subjective,' and that it is satisfactory to have, at last, reached a view, however disappointing, the 'objective' character of which is guaranteed by literary and historical research".

III.

There is no opposition in the whole repertoire of philosophical technique more misleading than that between 'subjective' and 'objective,' because it so often involves the ascription of independent existence to each one of two sets of conditions separately which exist, that is are operative conditions, only in conjunction. The junior reader assumes that his view of Plato's personality is 'objective' because the account of external influences—of impressions received by that personality, is as 'objective,' as true to ascertained fact, as the most up-to-date *ἱστορία* of the expert can make it. But it is really a 'subjective' view because it leaves out something essential. It does not take the external influences in conjunction with the mind which receives them and asserts itself among them and over them. The junior reader must be cautioned that it will not do to figure Plato as a *tabula*

rasa. In order to obtain an 'objective' view of Plato's personality one must have the history of his life and time controlled by a psychological diagnosis of his mind. And the more fully and circumstantially the history is set forth, the more necessary is the psychological control, if a 'subjective' presentation of Plato is to be avoided—as 'subjective' as, on the other hand, a psychological diagnosis would be which was not controlled by a history of the life and time of the subject of the diagnosis.

The evidence on which the psychological diagnosis of Plato's mind must rely is, of course, that furnished by his writings, taken not piecemeal, but as a single whole, the life's work of this man of genius.

Here some one will say: "Surely the junior reader must have had this evidence laid before him in Prof. Burnet's book. The Editor of the great Oxford Text of Plato has a more extensive and minute knowledge of what Plato actually says than perhaps any other living scholar. The evidence for Plato's genius to be derived from his writings can hardly be left out in Prof. Burnet's book. The junior reader is without excuse if he fails, as he reads, to see how the account given of the environment is controlled by a psychological diagnosis of the mind environed."

I kept the likelihood of this very natural rejoinder being made constantly in sight during my later re-readings of Prof. Burnet's book, and have now to say: No one could be more heartily ready than I am to admit that there is perhaps no living scholar who has a more extensive and minute knowledge of what Plato actually says than Prof. Burnet has: but, when I look in his book for production of the evidence to be derived from Plato's writings for a psychological diagnosis of Plato's mind, I find that I have to read between the lines of the book in a way which, I fear, one cannot expect the junior reader to do: Prof. Burnet dwells on the circumstances of Plato's life and time, but on the evidence in Plato's writings for a psychological diagnosis of Plato's mind he does not dwell. Indeed, I think I may go so far as to say that Prof. Burnet does not read Plato's writings with a mind alert to points which spring into the eyes of one whose interest and training have made him familiar with the means which recent psychological investigation has placed at our disposal for diagnosis of a writer's mental characteristics based on evidence furnished by his writings. I need not say that I mean no disparagement of a great Hellenist—great both in the field of textual criticism and in that of the History of Ancient Philosophy. I mean no more than I say—that Prof.

Burnet's interest does not lie in psychology. His book, so far as it is concerned with Plato, is therefore, as I have described it, a great half-book.

I do not think that the time is far distant when the psychological diagnosis of the mental characteristics of their authors will be regarded as indispensable to the study of all the philosophical systems which stand out as landmarks in the history of thought. A complete diagnosis of the mind of Leibniz, for instance—a philosopher closely akin to Plato—will, I venture to predict, when undertaken by a competent psychologist (who must also be a competent philosopher) throw a flood of light on the Leibnizian philosophy, and renew its influence. Its influence is bound to be blocked so long as students acquiesce in such exposition and criticism as we have in Mr. Bertrand Russell's *Critical Exposition of the Philosophy of Leibniz*, where no attempt is made to view the Leibnizian philosophy from within, in connexion with the mental characteristics of its creator. I would add that I think that the psychology employed in the diagnosis of the minds of the great philosophers will not have any kinship with the 'rational psychology' familiar to us, under various disguises, in even recent German works. It will be a specialised form of that psychology founded on minute observation of individual cases and comparison of results—one might almost call it that 'clinical psychology'—in which the French have, during the last decade and a half, done such distinguished work, and for which English-speaking psychologists also have shown a special talent.

IV.

Let me now put down a few notes calling attention to certain points which I think the junior reader of Prof. Burnet's book, when he is some years older, will find to have been cleared up by the psychological diagnosis of Plato's mind to which I look forward.

1. I think that the meaning of saying, as we all do, Prof. Burnet included, that Plato was a great dramatist will be better understood. It will be understood that it is eminently *as a philosophical thinker* that Plato is a dramatist—that his philosophical thought naturally takes dramatic form, and that, just where it is most philosophical, it invests that form with the greatest charm, or, it may be, splendour. It will be understood that, when Plato thinks at his best, his thought finds immediate expression in speech which his mind's ear hears, and in faces and gestures which his mind's eye sees, of *dramatis personæ*, the creations of his own shaping spirit

of philosophic Imagination. It will be understood, therefore, that it is 'Socrates,' not Socrates, who speaks even in the earliest Dialogues: that, when Plato wrote even his earliest Dialogues, he had already begun his life's work, as a philosopher, in all seriousness, and was not keeping his philosophy *in petto*, till, at the age of 40, he should found the Academy and begin to give lectures. To suppose that these early Dialogues and the monumental Dialogues of Plato's prime which followed them up to the foundation of the Academy are merely dramatic sketches written with the object of putting on record the opinions and difficulties of Socrates and other people of a bygone generation, not Plato's own opinions and difficulties at all, is really to make it impossible to conceive how he was able, at the age of 40, to burst out as a philosopher in his Academy lectures and so-called Academy Dialogues. Unless I am much mistaken the verdict of psychology will be that Plato, judged on the evidence of his writings taken as an organic whole, was one of those keen spirits—some of whom are ruled by Imagination, some by scientific interest, some, as he was, by both—who begin their life's work—and sometimes even complete it—in early youth. One has only to run the mind's eye down the lists of great poets and great philosophers to find many instances. To suppose that Plato kept himself deliberately out of the pre-Academy Dialogues is, surely, to suppose the psychologically impossible.

2. The researches of Prof. Burnet and Prof. A. E. Taylor have vastly enriched our knowledge of the historical Socrates. But the junior reader, while duly grateful for this, must take care that he does not let it obscure and confuse his conception of Plato. Here is an extraordinarily convincing presentation purporting to be that of the historical Socrates, and, doubtless, resembling him pretty closely. The data for this presentation have been collected from various sources, especially from Plato's Dialogues. But although many of the data for a very convincing presentation of the historical Socrates come from Plato's Dialogues, it by no means follows from this that Plato's sole, or even main, object in writing these Dialogues was to perform the pious duty of a Boswell, and present the historical Socrates in a life-like picture for the information of posterity. If the *dramatis personæ* in the Dialogues are good likenesses of Socrates and other people who had been well known to Plato and to his readers, this is not because Plato's object in writing was to make good likenesses of Socrates and these other people, but because images rose up spontaneously

before his mind in the likeness of originals, and were transformed by the genius of the great philosophic dramatist into *personæ*—actors of his own thought. The so-called Socratic Dialogues of Plato are not otiose impressions retained from the past, but present activities of Plato's spirit as it grapples with problems which 'have no date'. Plato, the philosopher is already thinking hard, in the earliest of them, in the dramatic manner characteristic of his genius. We owe our knowledge of Socrates principally to Plato, and our knowledge of Plato largely to his presentation of Socrates. Where Socrates is not effectively present in a Platonic Dialogue we miss what is most characteristic of Plato. Those Dialogues in which Socrates is most effectively present are 'Platonic' in a much truer sense than they are 'Socratic'. It is not 'good psychology' to look for 'Platonic Doctrine' as a residual element to be found after 'Socrates' has been eliminated. The foundation of the Academy was certainly an important event in the life of Plato; and after it his manner, as a writer of Dialogues, became more and more that of the lecturer. But to identify the real Plato with the lecturer would be to go far wide of the truth. It would be nearer the truth to maintain that the real Plato was the young man who was present at the trial of Socrates: nearest the truth, to equate the real Plato with the Doctrine of all the Dialogues from the *Euthyphron* to the *Laws*.

3. The gist of the foregoing note is that the success which has crowned the research of Prof. Burnet and others who have taken in hand the work of reconstructing the 'historical Socrates' is likely to mislead the junior student by disposing him to believe that there were two successive Platos—one, the author of dramatic sketches written merely to give faithful pictures of the historical Socrates and his companions—dramatic sketches out of which the writer carefully kept his own opinions; the other Plato, essentially a Lecturer, the Head of the Academy who began to express, perhaps to form, his own opinions for the first time at the age of 40.

This notion of two successive Platos, result of the prominence lately assumed by 'the historical Socrates,' I look to psychological diagnosis of Plato's mind eventually to remove. But in the meantime it is bound to have the effect of blocking the growth of any young student of 'Plato's Doctrine' who may have been induced to harbour it, by obliging him to put aside as 'Socratic' and not 'Platonic' the two things which, we may assume, impress and attract him most in reading the Dialogues from the

Euthyphron to the *Timæus*—the Doctrine of the Good, and the haunting presence of Mysticism.

4. The Doctrine of the Good, it will be admitted by everybody, is the key-stone of the metaphysical, ethical and political argument built up in the pre-Academy Dialogues—quite as plainly the key-stone in the slight Dialogues of the earliest period as in the elaborate *Republic*. But for the junior reader whose condition I am trying to describe these pre-Academy Dialogues are merely dramatic sketches of Socrates and his friends—people who belonged to a generation past when Plato wrote: in these Dialogues Plato is mainly a reporter: no difficulty, no doctrine, not even the dominant Doctrine of the Good, is felt or thought from within by Plato; he looks at every difficulty and doctrine there with the eye of an outsider. Socrates, we now know, held the doctrines—some of them taken over from predecessors, some of them worked out by himself—which Plato reports in these Dialogues: but in Plato's own philosophy set forth in Academy lectures and Dialogues they do not appear. Here I would ask the junior reader, while he waits for a systematic psychological diagnosis of Plato's mind, to consider, meanwhile, this point about the Doctrine of the Good: whether the doctrine, as it is set forth in the *Euthyphron*, *Charmides*, *Laches*, and other early Dialogues, is a logical venture which subsequent reflexion might put aside as unwarranted—a doctrine which the historical Socrates might well have held, and the Founder of the Academy might as well have dropped, if he ever held it; or whether the doctrine is not rather something organic in the mind of man, being the fundamental principle of an experience which no one who had conceived it so clearly and stated it so well as Plato has done in these early Dialogues could ever cease to make consciously the key-stone of his philosophy. Is it not a matter of fact that the Doctrine of the Good is the key-stone of Plato's philosophy, metaphysical, ethical, political, religious, as that philosophy is set forth in Dialogues written after the foundation of the Academy, although in some of these Dialogues the subjects dealt with do not call for explicit reference to it? It visibly holds together the vast structure of the *Timæus*, and is the latent bond giving unity to the elusive elements of which the *Philebus* is composed. The expression 'Idea of the Good,' indeed, appears only in the pre-Academy *Republic;* but it stands for the conception which not only has already been made prominent in the earliest Dialogues, but is going to be kept prominent in the latest. The Doctrine of the Good was held, we need not

doubt, by the historical Socrates; that, however, does not mean that it was a 'Socratic,' but not a 'Platonic' doctrine: it was held by Plato throughout his whole career in essentially the same sense as by Socrates, although the expression of it may have varied. I am afraid the junior reader will find the opposition between 'Socratic' and 'Platonic' so sharply drawn in Prof. Burnet's book confusing, and not least so where the Doctrine of the Good is concerned. It is true that the Doctrine of Ideal Numbers is 'Platonic,' not 'Socratic,' but it is also true that this Doctrine does not conflict with the Doctrine of the Good, or with the Doctrine of Ideas generally, as set forth in Dialogues written both before and after Plato lectured on the Numbers. The absence of the Doctrine of Ideal Numbers from the Dialogues written after Plato began his Academy Lectures in which this doctrine was set forth—some of these Dialogues being marked by his most sustained philosophical effort—makes one suspect that the doctrine has had undue importance attached to it by recent Plato-Scholars—that it was the result of an excursus from the main path of his philosophy made by Plato in a course of lectures which Aristotle did not like. At any rate, the junior reader must be warned not to think of contrasting the Doctrine of Ideal Numbers as 'Platonic' with the Doctrine of the Good as 'Socratic' in the sense of 'non-Platonic'. Further, I would ask the junior reader to consider whether it is reasonable to dismiss as 'Socratic,' in the sense of 'non-Platonic,' the Doctrine of the Good, as it is set forth in the central books of the *Republic*, while, at the same time. recognising, as one is bound to do, that to know the Good with which this Doctrine is concerned is the *raison d'être* of a curriculum of education, outlined in these central books of the *Republic*, which, as Prof. Burnet tells us, and tells us truly, was afterwards adopted by Plato in his own Academy and so effectively established there that it became the model on which, centuries later, European Universities shaped their scheme of studies.

There is still another point, under this head of the Doctrine of the Good, which I would have the junior reader consider: The Constitution of the State set forth, by the mouth of Socrates, in the *Republic*, embodying, as it does, the Doctrine of the Good, does not reappear in the *Laws* where Socrates is not present: I would ask the junior reader —Is it fair to argue from this that, while the Constitution in the *Laws* represents Plato's own political view, the Constitution in the *Republic* either never represented it, or did not continue to do so? I think that the junior reader, were he

to take due account of the psychologically probable, would find it easier to suppose that Plato changed his political view between the time of writing the *Republic* and the time of writing the *Laws* than that he never held the view represented by the Constitution set forth in the *Republic*; but it is not necessary to suppose that he changed his view. The view represented by the Constitution of the *Laws* does not supersede that represented by the Constitution of the *Republic*; for each of the two Constitutions is intended for an entirely different kind of State—the Constitution of the *Republic*, for the Capital City of a Hellenic Empire, Plato's dream; the Constitution of the *Laws*, for a municipality, not unique, as the Capital City of an Empire is, but, one among other similar municipalities—for some new Colony, in fact, which might possibly apply to the Academy for a draft Constitution.

Let me say, in concluding this section, that, while I think that the junior reader may easily be led by Prof. Burnet's book to regard the Doctrine of the Good set forth in the pre-Academy Dialogues as 'non-Platonic,' I do not think that the experienced reader will take Prof. Burnet to mean all that such a judgment would involve for our estimate of Plato. At the same time I do think that even the experienced reader will be troubled by the strain which Prof. Burnet puts upon him of always having to remember that a personage who has all the marks of a brilliantly imagined dramatic figure is, after all, the 'historical Socrates,' and is misunderstood if regarded as anything else: and troubled also by what seems to be Prof. Burnet's opinion, that the Doctrine of Ideas—the Idea of the Good being, of course, one of the Ideas—as it appears in the *Republic* and other pre-Academy Dialogues, was superseded by the Doctrine of Ideal Numbers, the only 'Platonic' Doctrine of Ideas, it would seem, according to Prof. Burnet. 'The Ideas' were, doubtless, taken by the historical Socrates from predecessors, but he transformed them by giving them a significance for metaphysics and ethics which was lacking to them as conceived by his predecessors; and the transformation wrought by the historical Socrates was immensely augmented by the dramatic Socrates, that is, by the genius of Plato. 'The Doctrine of Ideas,' as we have it in Dialogues written before Plato began to lecture on 'The Numbers,' was already as truly a 'Platonic' Doctrine, as the Pediment Groups of the Parthenon are 'Phidian,' although the archæologist can trace their genealogy back, through gradual steps, to the rude handiwork of some remote 'Daedalus'. One would like to see in Prof. Burnet's

treatment of 'The Doctrine of Ideas' a better recognition of the marvellous transforming power of the τελευταία διαφορά which Genius knows how to add to material—often already elaborately formed material—inherited from predecessors.

5. I come now, in the last place, to Prof. Burnet's recognition of the presence of Mysticism in the Dialogues. He recognises it; but it is not a 'Platonic' feature. The mind of Socrates had its mystical side which Plato describes and illustrates. The mysticism which appears in the Dialogues does not come from Plato's mind. This is Prof. Burnet's account of the presence of Mysticism in Plato's Dialogues.

I do not think there is anything in Prof. Burnet's book which points to the need of a comprehensive diagnosis of Plato's mind more clearly than this account of the presence of Mysticism in the Dialogues. Even now, while one waits for the comprehensive diagnosis, one may surely venture to say that the man who found the language, sometimes so subtle, sometimes so impassioned, in which the mysticism of another is depicted in the Dialogues, must have been himself one of the great Mystics. One's admiration of the qualities of Prof. Burnet's book makes one regret all the more that he does not see that Plato is one of the great Mystics. This failure affects especially his view of the Doctrine of Ideas and his view of the place which the Myths hold in Plato's philosophy. I will not enlarge on these topics. I will only say that the Doctrine of Ideas, stripped of its æsthetic and religious significance, and shrunken into a Doctrine of Ideal Numbers, is not the 'Doctrine of Ideas' which made Platonism the power which it has been, and is, in the world: as for the Myths —Prof. Burnet regards them as negligible, being external to Plato's philosophy. They are indeed external, if Plato is not one of the great Mystics. If he is—and his appreciation of the mysticism of Socrates, and the nature of the influence exerted by Platonism continually down to the present time, seem to show that he is—if Plato is one of the great Mystics, his Myths are not external to his philosophy, but are an essential part of it, without which the other parts of it cannot be understood. A great man—be he philosopher, or poet, or sculptor, or statesman, or whatever else—is great just because, having great endowment, he puts the whole of himself into every work which he brings forth. Plato was a man of this sort: and his work is misjudged, its greatness is lost upon us, if we interpret it in terms of a part, not of the whole, of him—in terms of a Plato *minus* the mysticism, the prophetic vision, of the man. I feel sure that a com-

prehensive diagnosis of the mind of Plato will show that the Myths are not external to his philosophy.

Prof. Burnet's book, so far as it is concerned with Plato, is, as I have said, a great book of *ἱστορία*—an eminent example of a class of books to which great deference is paid at the present day, and, on the whole, rightly paid—books which take works of the past and their makers, in the fields of religion, philosophy, literature, fine art, strictly as subjects of science, and employ all the resources of historical and philological learning in filling in environment round them. Where the works and their makers, so treated, are mediocre, the game of 'adding to our scientific knowledge,' if cleverly played in relation to them, may be accepted as worth playing for its own sake, that is, for the fun of playing it; but where the works are great masterpieces and their makers men of genius who have put the whole of themselves into their works, the case is far different, for a great danger is involved—the danger of 'subject of science' coming in between us and 'source of inspiration'. If such a disastrous eclipse is to be avoided, where masterpiece and man of genius are concerned, the *ἱστορία* which takes them as 'subject of science' must be controlled—the more elaborate the scientific achievement, the more strictly controlled—by a conception of the personality of maker and significance of work—a conception for which, as I have contended in this article, we have to look, in the main, to psychology, without—let me now say with special reference to Plato and his work—without giving up the hope—for this is a time of Crisis when great things may happen—without giving up the hope that the conception may come to us in a more excellent way, flashed into our minds by the Imagination of some great master of the Interpretation in which the message of Platonism lives.

Let me end with an illustration, from the field of Greek sculpture, of the contrast, on which I have dwelt throughout this article, between *ἱστορία*—now, I fear, in almost exclusive occupation of that particular field—between, on the one hand, *ἱστορία*, concerned scientifically with the antecedents of a masterpiece and the technique employed in its production, and, on the other hand, the Imagination of the great Interpreter which grasps intuitively the significance of the masterpiece as revelation of the genius of the maker:—

In the following sentences *ἱστορία* sets forth items of technique in the case of a famous masterpiece of Greek sculpture—"Ein mehr breites als schmales Oval umschreibt

das Gesicht in seinem äusseren Umriss, ohne dass es deshalb in seinen einzelnen Formen breit zu nennen wäre. Denn wenn so manche griechische Köpfe, namentlich aus der peloponnesischen Kunstschule, wie aus einem viereckigen, quadraten Körper herausgeschält erscheinen, so geht hier die Grundauffassung des Künstlers vielmehr von der Rundung des Kopfes aus. Die Seiten fallen nicht von der Vorderfläche des Gesichts wie von einer Ecke steil ab, sondern sie wolben sich von der Basis, von Ohr und Kinnbacken, in schönen Bogen nach vorn, so dass sich namentlich die Mitte der Stirn in starker Schwellung energisch hervorhebt und ebenso die Nase kräftig heraustritt." Contrast with this effort of ἱστορία the achievement of ποίησις where the Imagination of the Interpreter sets forth the significance —in this case the individual beauty—of the same masterpiece as revelation of the genius of the maker—

> And if it be Prometheus stole from heaven
> The fire which we endure, it was repaid
> By him to whom the energy was given
> Which this poetic marble hath array'd
> With an eternal glory—which, if made
> By human hands, is not of human thought;
> And Time himself hath hallow'd it, nor laid
> One ringlet in the dust.

III.—RECOLLECTION, ASSOCIATION AND MEMORY.

By J. Laird.

The problems of memory, always fundamental, have a quite peculiar importance in contemporary philosophy. On the one hand, psychological investigations into the subject have received a welcome and a powerful impetus from M. Bergson's lucid pages. On the other hand, the new realists have quickly discovered that the status of memory, memory-images and association is critical for their important inquiries into theory of knowledge. Memory, therefore, has become the meeting point of two dissimilar lines of research, to the reciprocal benefit of the philosophy and psychology of the day. Its problems, of course, are old problems, and even the crucial distinctions of present discussions have all been anticipated in one way or another. There are, and have been, many philosophers who could claim, not without reason, that the new theories had passed through their minds long before the present fashionable philosophies announced them with trumpets. But that is what Dr. Johnson said of Hume; and this parallel should serve as a warning, even granting that these philosophers, unlike the lexicographer, could produce tangible evidence in favour of their assertion. In any case, it is written in the Koran that every age hath its own revelation. Every age has the duty of making its ideas clear in its own way, of marshalling its evidence and deducing its conclusions.

In the present paper I hope to be able to keep many of M. Bergson's theories in mind, particularly his assumption that duration, in the true and proper sense, is entirely a property of the spirit, and his doctrine that there is a radical difference in kind between the explicit recollection of specific events in the past and that mechanism of reproduction or repetition which we are also accustomed to describe as memory. For the most part, however, I shall follow the trail of the new realists, speaking their language as well as I can, and assuming what I take to be their main assumptions. The aim of

this procedure is not, of course, to show that the facts of memory can be tortured into consistency with these assumptions, but contrariwise that the facts require them. And although this plan of argument is always attended by the dangers which arise from the covert dogmatism of a new terminology, only the result can show whether this danger has become an actual injury. The principal assumptions of this theory are, I think, two in number, and they may conveniently be stated in a negative form. It is held, in the first place, that the existence of apprehension as a fact does not imply any community of properties between the process of apprehending and the object apprehended other than those properties which are shared by all beings; and, in the second place, that there are no limits, *a priori*, to the power of the mind in becoming directly acquainted with objects as they really are in themselves. Such limitations as exist must be shown to exist by wholly empirical arguments. If in some cases representative intermediaries come between the mind and its objects, if, in other cases, only knowledge-about and not direct acquaintance can be obtained, the reason lies in certain circumstances of mere fact, and cannot be deduced from the analysis of knowledge itself. The process of apprehending is not representative at all. When it is successful it simply finds, discovers or inspects the object as it really is.

It will speedily be plain that these assumptions have an important bearing on the problems of memory, and, in particular, that they are intricately connected with the analysis of recollection. The term recollection, like every other used in discussions on this question, is somewhat ambiguous, but an example will explain what is meant by it, and will perhaps give a better explanation than any meticulous inquiry into verbal import would. Consider, for instance, a man's recollection of his wedding day. This event is presumably unique in his life's history, and presumably aroused his interest and attention to such a degree that he is not likely to forget it afterwards. There are several events in the life of every man which require the same analysis as this one. The man can call them to mind at any time in all their specific uniqueness as definite particular events in the past; and the lapse of time has very little effect on the form they assume when they reappear to him. His recollection of them differs, no doubt, from their original presentation in ways which we shall have occasion to notice. But one recollection of an event does not differ appreciably from the next recollection of the same event. This, then, is what is meant by recollection in its most explicit form; and there are various approximations to it which ought to be described by the same name.

The natural interpretation of facts of this kind is that the man, spontaneously or voluntarily, apprehends the same past event again and again, and knows that he does so. His object seems to be the very event which he formerly apprehended as a present reality; recollection means his recurrence to it; and if the event itself appears to be poorer and feebler when recalled than on its original occurrence the obvious explanation seems to be that lapse of time makes the man's grip of it less secure. This is the natural interpretation, and it is also the naïve interpretation of the plain man, as anyone may discover by making inquiry among those of his friends who are unacquainted with technical psychology or philosophy, and refraining from giving them leading questions or suggestions. Under these circumstances it is the philosopher's business to ask whether there are any good grounds for denying that this natural interpretation is the true one. If not, the presumption is in its favour, and perhaps more than the presumption.

The new realists maintain, not merely that there are no serious difficulties in the way of this analysis, but that the analysis is the only one which they find to be in accordance with their own experience; indeed that there are insuperable objections to any other. The first part of this thesis follows naturally from their theory of knowledge. If a process of apprehension must have many elements literally identical with those of its object, and particularly if the distinction between process and object is only one of 'aspect,' it is clear that a process which is wholly in the present and an event which is wholly in the past can scarcely be united in a single pulse of experience, and clearer still that this union could not occur repeatedly in connexion with the same past event. According to the new realists, however, the facts themselves show that there is no sort of identity between process and object in these cases, at any rate in point of time, and therefore that there is no theoretical difficulty in this respect. The objection, they maintain, has no better warrant than any other vestige of the indefensible theory that knowledge consists merely in the states of a 'wind borne mirroring soul' bereft of any real power of apprehending aught save its own feelings and images. It depends upon the same prejudice as the theory that a temporal process of apprehension cannot apprehend what is not in time, that a particular act cannot comprehend a universal, or even that a mind correlated with a tiny area in the brain cannot, in Malebranche's phrase,[1] 'take a walk among the stars' or directly perceive an object outside the body. And the other stock objections, in their

[1] *Recherche de la Vérité*, Livre III., II^e^ Partie, chap. i.

opinion, have an even slighter foundation, if that, indeed, is possible. To Hume's dogmatic assertion that it is 'impossible to recall the past impressions,'[1] they reply that his statement is either false or meaningless unless it is taken in the quite trivial and unexceptionable sense that no one, in the present, can have his original actual experience of the past. Certainly, this past experience can no more be restored than the united efforts of the king's horses and the king's men, in the legend, were able to restore Humpty Dumpty. But that is the sum of this objection. And if there seems to be a difficulty in the fact that knowledge is of that which *is* and that the past *is not* because it is dead, the new realists answer that this further objection evidently depends upon a fallacy of equivocation. Knowledge is of that which is when the word 'is' does not imply tense, and on that meaning only. Restriction to the present makes nonsense of the dictum. A piece of past existence is just that piece of past existence for all time. Because it is past it is eternally safe. Even revolving moons and suns cannot affect the full reality of its being. It is precisely that event which formerly happened.

The alternative analysis, which, in some form or other, is the usual one, rests upon a particular interpretation of memory-images. This analysis, in its least qualified form, may be stated somewhat as follows. Recollection is wholly a present event, and proves, on investigation, to consist of the existence of a memory-image contemporaneous with the process of recollecting, together with the present knowledge and belief that the image represents, and adequately represents, the past which has been experienced. The memory-image is said to be a *reproduction* on the ground that it is a later edition, and approximately a *facsimile*, of the former event. But instead of being the past existence literally, it is only a revived copy. Of course, the mere fact that an image now exists which happens to be similar to a previous percept, feeling or image is not in itself recollection at all; for that would ignore the vital feature of recognition proper, which makes recollection what it is. But recognition, according to this theory, seems to be mere knowledge-about. We know *that* the reproduction represents the past, *that* we have experienced the corresponding past event, but we are never directly acquainted with the past event itself. This view, despite occasional ambiguities of expression, is the substance of the celebrated chapter on Memory in James Mill's *Analysis*.[2] And I think

[1] *Treatise*, Book I., Part III., sec. v.; Selby-Bigge's edition, p. 85.
[2] *Analysis of the Phenomena of the Human Mind*, chap. x.

it is Dr. Ward's[1] view also. One would conjecture that these authors have very highly developed powers of visual imagery.

In most works on psychology a modified form of the theory prevails, particularly when the writers have clearly realised that imagery of every kind is very feeble in many persons whose powers of perception, introspection and recollection are not a whit inferior to their neighbours'. This modified theory need not deny that past events, in some cases or in all, may be directly apprehended. But it maintains, in the words of William James, that 'the first element which such a knowledge involves would seem to be the revival in the mind of an image or copy of the original'.[2] And although some of the statements of James himself and of others who argue in the same vein seem to imply, not merely that the past event may *also* be apprehended directly when such a copy occurs, but that it *must* be so apprehended,[3] a more careful examination of their language indicates that in their view also the recognition of the past is merely knowledge-about, and derived, in all probability, from a conceptual extension of certain characteristics of the spécious present. It may be doubted, therefore, whether the qualified and unqualified forms of this theory differ very much. In any case both of the forms agree that the fundamental fact in recollection (and, more generally, in memory) is the existence of images in the present which are described in somewhat metaphorical language as reproductions, or even as residua, of the past.

The presuppositions of this paper make it unnecessary to consider any defence of this representative theory based on the general characteristics of knowledge. The only relevant arguments within the self-imposed restrictions of this discussion are empirical ones; and the most important of these depend upon the assertions that memory-images, in point of fact, always exist at the time of recollecting, and that they differ intrinsically from the events in the past which they represent. Let us, then, consider these assertions with special reference to those instances of recollection in which the so-called memory-image is unusually clear and precise.

The main question at issue is evidently whether these images are really judged to be contemporaneous with the process of apprehending them. If not, they should not be presumed to exist in the present, and the principle of parsimony, if nothing else, would lead us to expect that they are

[1] Article "Psychology" in *Encyclopædia Britannica*, eleventh edition, vol. xxii., pp. 573 *sqq*.

[2] *Principles of Psychology*, chap. xvi., vol. i., p. 649.

[3] *Ibid.*, especially p. 650.

simply the past events themselves. That they are apprehended in the present is beyond question, but it does not follow on that account that they are present existences. And there are very good grounds for denying that memory-images are judged to be present existences, when once this source of confusion has been dispelled. The plain man, it is true, is apt to be puzzled when he is asked *where* his memory-images exist, and *when* they exist. He has a present awareness of them, and, in a way, they seem to be spread out before him, and not very far distant. But if that were all, there would be very slender reasons for his perplexity; for his present awareness of them is no proof of their present existence, and their apparent proximity in space is irrelevant unless the imaged space in which they appear is judged, *de facto*, to be situated within the perceived or perceptible space in which the man (or his body) is at the time when he is aware of the image. But the plain man does not confuse his images with his percepts, and it would be a very gross confusion indeed if he localised his images within the space which he perceives at the time of imaging. Indeed, if he did so he would suffer from hallucination. Thus the distance of an image is a distance in imaged space; and if a so-called memory-image is really (as seems plainly possible) a former percept now remembered, the natural inference is that its time and place are those of the remembered percept itself. In other words, any one who has an explicit memory-image literally transports himself *in memory* to the time and place of his original experience.

Let us put a case for purposes of illustration. A man who has seen the Victoria Falls during his travels may call up a memory-image of them when he returns to England. On our theory the scene extended before the eye of his mind is the very scene of which he was formerly a spectator, and the spatial characteristics of it are relative to the position of his body as a spectator when he was there. The 'image' in other words is a scene containing his imaged body to precisely the same extent as his original percept contained his perceived body. The scene which is imaged does not really appear to be within the four walls of the English library where the traveller is sitting, and there is no good reason for denying that its place is actually 17° 51′ S., 25° 41′ E. Similarly the time of it is not the time which the traveller spends in England, but the past time which he spent in Africa.

The obvious reply to this view is that memory-images may be aroused voluntarily in a way that feels similar to the creation of images of the fancy, that 'free' images of the

fancy appear to exist contemporaneously with their creation, and that there is no intrinsic difference between a 'free' image and a memory-image, since these differ only inasmuch as there is an accompanying reference to the past in the latter which is absent from the former. But what does this argument prove? It cannot prove that everything which the mind apprehends voluntarily is judged to be contemporaneous with the apprehension of it; for the mind can voluntarily apprehend universals and know them to be timeless. And surely the admitted difference in reference to the past is vital to the whole problem. Thus it is legitimate to accept the facts as they are stated in this argument and yet to deny the conclusion, unless the whole question is begged by the use of the phrase 'arousal'. But it is also legitimate to point out that the statement of facts on which the argument is based is by no means indisputably accurate. It is really very doubtful whether 'free' images are usually supposed to be present either in space or in time, at any rate in the same sense as percepts. A proof of their presence in space may indeed be drawn from the fact that some persons are sometimes capable of projecting their images upon a perceived surface. But an exceptional power of this kind does not prove a general theory, any more than the ability of some persons to twitch their ears voluntarily proves that there are no involuntary muscles. And this question is not disconnected with the former. Imaging occurs when the mind plays with its ideas, and these ideas are usually old ideas even when they appear to be quite dateless. Their bizarre combinations are due to the omission of their original accompaniments rather than to anything else. They come together in strange conjunctions like flotsam from a wreck or patterns in wind-swept sand. Even dreams, as followers of Freud insist, consist of old materials condensed together in surprising fashion. It is true however that dream-images usually appear to exist when the dreamer notices them, and that his emotions show that the unexpected combination is really a new event in his experience. To deny this would be folly, and it would be ill-advised to lay much emphasis upon the relevant differences between the imagery of dreams and of waking life. So we should not deny that some images are judged to exist contemporaneously with the imaging of them. We should only note the fact that this coincidence is often very doubtful.

The second empirical argument against the analysis of the new realists states that memory images cannot be past events, because they have only the kind of reality which images have, and that is not the reality of actual events in any

sense relevant to this discussion. Now, even if there were always an intrinsic difference between percepts and feelings, on the one hand, and what we call their images on the other, such that percepts and feelings necessarily possess characters which images lack, the possibility would still remain that images were literally the originals bereft of these characters. But, in point of fact, there are no such intrinsic differences. Images differ from their originals in intensity, fullness of detail, steadiness and the like, but this type of difference does not prove that images and their originals are wholly different beings. Some percepts are fainter than some images, and the wavering jets of gas at a country fair to which the unsteadiness of images have been likened are percepts after all. There is no serious difficulty, therefore, in maintaining that any differences which seem to be objective are due to time perspective and to the fact that the mind has a slighter hold of past events than of present ones. The really important difference between, let us say, percepts and images is not objective in this sense. It is a difference in respect of bodily consentience, or of what is really the same thing, the so-called 'aggressiveness' of percepts. The ultimate difference is partly a bodily one, partly one of feeling. A percept is always part of a complex in which the condition of the body judged to be contemporaneous with the mental attention, its motor attitudes, and the feeling tone connected with it, are included. The bodily consentience is quite different when imaging or recollection occur, and the fact has several interesting consequences. We may note, in the first place, that we usually neglect these organic sensations, except when they are very pronounced, in favour of their objective reference; and in the second place, that the present, for us, is usually bodily. In reality the organic sensations may really be past when we think them present, *i.e.*, when we think that they occur at the same time as our present act of attention. Probably indeed, they are past, since a slight interval is required for nervous conduction. But we judge them to be present, and call everything present which is included in the perceived complex of which they are part. Thus it is that we take the star which we see to be present although we may really see it as it was in the days of Moses; and thus it is that we cannot adequately distinguish between introspection and retrospection.

This leads us back to the question of time. We need not stay to consider the difficulty that an event may occupy a few seconds in recollection although it occupied days or years in happening. This is a difference between the apprehension of

the past and that of the present, and in itself it only proves that the former process is the speedier, although the reason is doubtless that most of the detail of the past is always omitted in retrospect. The explanation would be the same in principle even if we suppose the case of one of Swift's Struldbrugs contemplating in a few minutes the whole existence of a tree which he had planted and seen 'standing long an oak, three hundred year'. We may therefore pass to more important questions of time. Recollection, on any theory, has a quite specific reference to the past. In what respects, then, does pastness seem to pertain to its object? The answer to this question, important in itself, is particularly important in the present connexion.

Many psychologists maintain that when we recollect a past event its pastness is never one of its objective characteristics. The reasons they usually allege in favour of this doctrine are that empty time is not an object of intuition, that a lapse of ten years does not differ to mere inspection from one of five years, and that dating in time is as purely conventional as the date of Easter, or the embolismic years in the Jewish civil calendar. These reasons are flimsy. The impossibility of intuiting time in and by itself does not show that there are no objective time relations in time which is filled, or, more accurately, in every single event which can be intuited. The comparison, to inspection, between a lapse of ten years and one of five involves the same kind of difficulty as the comparison, to perception, between a broad landscape and the interior of a room. In one sense the same spatial volume may be said to be perceived because the eyes are fully open. In another way the greater may easily be perceived to contain the less. And although dating in time is usually expressed by reference to arbitrary units and a conventional starting point, it is not therefore a mere fiction. It is evident, indeed, that when we isolate, in recollection, an event which happened ten years ago and another which happened two years ago, no corresponding difference appears. But that is because we have isolated them. And even these isolated events have intrinsic relations of before and after, a beginning and an end, hence supplying a firm basis to conceptual schemes of time. It is beyond question that objective transience is a datum of direct apprehension, and in perceiving transience we perceive before and after.

Accordingly the order of earlier and later is not merely a phenomenon of the spirit. There is nothing subjective in our knowledge that Mr. Asquith resigned before Mr. Lloyd George became Prime Minister, or that the *Comet* was built before

she put to sea. Even the theory that our belief in the transition of *things* is merely correlated with an experienced *mental* transition is, in its own way, a plain denial of subjectivity. For how can mental and non-mental be correlated in this way except in so far as they are judged to occupy the same time? On the other hand, pastness, presentness, and futurity are wholly relative to the spirit, and indeed are purely psychical experiences except in so far as they contain an order of earlier and later. It is legitimate, indeed, to speak, as we have spoken, of a past event when we mean an event known to have occurred earlier than another which, at some particular moment of time, we judge to be contemporaneous with the experience of presentness. But it is plain that there is a specific psychical experience of presentness, pastness, and futurity which is irreducible to the order of earlier and later. These are qualitatively recognisable elements in our references to any objects including ourselves, shifting in their relation to things and to the mind itself in such a way that any event in life after its beginning is (at different times) future, present and past to us. There is no greater mystery in this than in movement or change itself. But the implications are important, especially with reference to the specious present.

The theory of the specious present is based primarily on the fact that an act of attention occupies a sensible duration. The inference is that the facts apprehended in this act of attention must occupy a stretch of time, not merely a mathematical point of time; and although this conclusion does not follow from the premises, since no logical contradiction is implied in supposing that a mental process which endures may refer to a mere position, like an instant, which does not endure, still it seems to be true that any *observed* event has a sensible duration. Then follows the statement that if we concentrate our attention on some actually perceived transition contemporaneous with the attentive act (such as the movements of a Savart's wheel) the perceived transition is correctly estimated within fairly constant limits which are probably coincident with the movement of attention itself. And this seems to be established. Finally the deduction is drawn that any transition apprehended as a whole appears to be present as a whole, in the sense that each part of it appears to be present with or without some mere indication of pastness. And that is a mere fallacy.

In point of fact the total transition apprehended in any single act of attention is a specious past, and probably a specious future, as well as a specious present. In our awareness of our own mental transitions the presentness

does not rest in the felt transition but moves with it so that part of the transition apprehended is apprehended as past.[1] Similarly, a non-mental transition of which we are aware is apprehended partly as past, partly as present, and, probably, partly as future. Indeed, the only limits to the extent of past duration which the mind can apprehend in a single act of attention are the limits of recollection. What is plain, however, from a mere analysis of the specious present as described by psychologists is that any event of which we are aware is partly recollected. Thus we are told that part of the specious present is felt to be waning and escaping us. It is. And the reason is that it is recollected and that the hold of our attention upon former things, even if not appreciably relaxed, feels less secure. Indeed, this point is very plain if we consider what is meant by the waxing or waning of presentations in the 'specious present'. These terms are comparative. The waning part of the presentation grows fainter before our eyes. It is felt more and more faintly than it was before. But this faintness is relative, and relative in the making. The waning portions of a presentation are not necessarily the faintest portions, since they may be more vivid than the other portions despite the fact that they are waning. In a word, we are aware of a process of transition, of a changing event in which there is not simultaneity but succession. We should conclude, then, that there is an element of recollection in all temporal apprehension.

This result is very important for the analysis of recollection, and a statement of its importance will fittingly conclude the discussion of this part of the subject. In the first place, it implies that direct apprehension of the past is not merely possible, but that it always occurs when there is apprehension of time. It is very hard, on any theory, to believe that our knowledge *that* we have had previous experience (which is implied, as we have seen, in any analysis of recollection) could be mere knowledge-about. How could we know this unless we knew the past, and how could we know that our present images represent the past without direct acquaintance with that past? The suggestion that this reference to the past may somehow be elaborated from the specious present has proved to be untenable, and the inference seems

[1] It may be objected that this statement cannot hold of the first moment of any given transition. The answer is that the transitions are not really discontinuous. The pulses of attention are separable from one another only in the sense in which waves of the sea are separable. Thus the statement in the text holds without qualification.

plainly to be that most so-called memory-images in recollection are the very past events themselves. For, if they were not, our minds, in recollecting, would have a double object before them. We should be aware both of an image and of the past. And this does not seem to be the case, at least with regard to explicit memory-images. The problem whether there are *some* present images in the case, principally of a nascent or penumbral sort, will be discussed in the sequel. Meanwhile we may note that our result harmonises fully with the literal implications of language, a consideration which ought to have some little weight. That is retained which was once attained, that recognised which was previously cognised, that represented which was formerly presented. And nothing should be said to be reproduced unless it was previously produced.

In the second place this analysis of the 'specious present' shows that perceived events and remembered events need not have any of the differences that hold between the corresponding experiences of remembering and perceiving. If time were wholly a phenomenon of the spirit this conclusion could not be avoided, and it would be disingenuous to search for plausible evasions. Again, if pastness, presentness and futurity were wholly objective, a present object, *ex vi terminorum*, could not become past without thereby becoming a different object. But if, as we have argued, the characteristic experiences of presentness and the rest belong to the mind while the order of earlier and later is objective even within the 'specious present,' there is no serious difficulty in the case. An event has eternally the same place in the order of earlier and later whenever we happen to contemplate it. The changing experience of the felt 'now' belongs to the mind only.

Let us turn to association and to its connexion with recollection and memory. The process of association itself has been analysed so frequently and so minutely that a detailed discussion of its forms and principles would be out of place here; but a brief explanation is necessary in order to define the subsequent argument.

Association is always redintegration and necessarily implies some previous integration (even if mere conjunction) between the elements redintegrated, and a resemblance between something in the present (or in the immediate past) and the idea redintegrated. This resemblance gives association its cue. The result of association is the reappearance of that which was previously integrated.

This analysis holds of both forms of association, the

association of similars and the association of the contiguous, despite the manifest difference between them. A typical example of the first sort would be an occasion in which I find myself thinking, without apparent cause, of President Roosevelt, and discover that the immediately precedent event in my consciousness was a glance at a stranger whose features resembled those of the President. In this instance there is clearly resemblance between the cue in the immediate past and the idea associated. And there is also previous conjunction between the stranger's type of features and those of President Roosevelt. A typical instance of the second kind of association would be an occasion in which I find myself thinking of the Great Court of Trinity College, Cambridge, and discover that this idea arose immediately after I had been looking at President Roosevelt's photograph. In this case there is redintegration of the scene in which I previously saw the President in person. For I saw him once in Great Court, and now I redintegrate the part of this formerly experienced conjunction which is not included in the link of resemblance supplied by the photograph. I redintegrate Great Court without Roosevelt. And the principal difference between these two kinds of association is that in the former of them the redintegration is of characteristics which always go together in our experience, so that the identical elements of the resemblance which gives the cue must be redintegrated along with the rest of the elements originally experienced as conjoined, while in the latter form of association the associates are separable in common experience, the identical link disappears, and only the remainder of the original occurrence is redintegrated. Features of the countenance are not found in isolation, but Great Court may often be perceived tenantless.

These examples have been chosen for the purpose of illustrating the connexion between association and recollection. In many cases, of course, the ideas associated may not be capable of explicit recognition of this kind. They may have suffered from what Shadworth Hodgson graphically, if metaphorically, describes as 'corrosion, melting and decay'.[1] They may be so inconspicuous that the process of redintegration hurries past them to find something more striking and tangible. But the explanation is always the same. In every instance there has been a previous integration in experience, and the association is always based upon a resemblance in characteristics or relations between

[1] *Time and Space*, Part I., chap. v., p. 266.

the idea eventually associated and its cue. And this fact ought to have an important bearing upon theories of the relation of recollection to other forms of memory.

The accounts of association and recollection in psychological treatises frequently leave the problem of their relationship to the inference of the reader, except with regard to the way in which association may be the chosen mechanism of voluntary recall. . It is undeniable, of course, that association is often set in motion for this express purpose, and that it frequently attains the end desired. When we cannot recollect at will we begin a process of redintegration, starting from a point which we conjecture to be in the neighbourhood, temporally or logically, of the object we desire to recollect. The same holds of memory in the most general sense, including arguments, logical connexions and anything else noted once and now felt, even vaguely, to be familiar. Conversely, when we are afraid of forgetting anything at the time we want to remember it, we try to establish an association between it and something which we are likely to notice at or about this important time, as in James Mill's 'vulgar instance' of tying a knot in one's handkerchief,[1] or in his more respectable instance of the custom which some of the old Roman orators practised of associating the heads of the speeches they were preparing with the principal parts, in order, of the building in which they were to deliver them. But many other relevant questions arise in this connexion which are less frequently discussed.

Association and memory have many characteristics in common. Both are merely conservative, for when there is fusion of old and new, as in apperception, it is only the old elements in the new result that are, properly speaking, either remembered or associated. . Again, while both imply retentiveness, neither is mere retentiveness. Retentiveness is common to minds and organisms, and may occur in inorganic things. The hysteresis of an aneroid implies retentiveness just as much as the continued weakness of a dislocated joint or repetition by rote. Memory and association, on the other hand, are restricted to conscious phenomena, and that is why a theory of organic memory like Samuel Butler's is justly considered to involve a misuse of terms.

Indeed, it is plain that, since association always implies a previously experienced conjunction or connexion, the objects associated or redintegrated cannot differ appreciably from the objects of memory. How, then, do they differ at all? There

[1] *Op. cit.*, vol. i., p. 323. (J. S. Mill's edition.)

seems to be no important difference, except in the fact that we may associate ideas without knowing that there has been previous conjunction. And this knowledge, though in very different degrees of explicitness, is a necessary part of the analysis of any species of memory. The difference, in many cases, is very marked. Frequently, when an idea arises in our minds through association we simply find ourselves thinking of it, and do not know how it arose or why. Thus I may find myself humming a refrain from the *Mikado* and discover only by subsequent reflexion that the reason why I took to humming this tune and not another one was that the phrase 'retributive punishment' had chanced to occur in conversation shortly before. In the same way recollection is often subsequent to association even when we make use of association for the express purpose of recollecting something we have forgotten. Thus I may have forgotten the Gypsy word for a snake-charmer as stated in Borrow's writings, and have only a vague notion that it was somehow connected with a tree. After a time the word 'sap-engro' comes into my mind, and this is the word I want. But very often I come to think of the word in this way before I am able to recognise that I have got it at last. The word arises by association before I recognise or remember it. And when there is no temporal difference of this kind there is always a logical one, so that association is not memory, precisely because it lacks this characteristic knowledge that the past is involved. Yet this difference, however important, does not, as we have seen, imply any intrinsic difference in the objects of association and memory. For pastness is not a character intrinsic to former things, but essentially a felt relation to the subject.

This analysis clearly implies the truth of James's view that the objects of association are *things*, with the addition that the things in question are past things whether we know this or not. And is not James's view manifestly correct when 'things' are understood in the wide sense which he intended? We associate Sunday schools with hymn-books, lyddite with factories, diagrams with compasses, bells with books and candles. These are things when associated just as much as when perceived; they are not mental processes. But how, then, are we to explain the paradox that, from another point of view, things are not associated at all? Smoke and fire are connected by certain physical and chemical laws; and these are not the laws of association but the laws of nature. And how can association by mere assonance, like the association of 'judge' and 'fudge,' be

said to be of things? Is not association manifestly of ideas?

Association *is* of ideas when 'ideas' are understood in their true and proper sense. An 'idea' is any thing, relation, or process in so far as it is apprehended. This is what Locke or Berkeley meant by it, whatever conclusions they drew. An idea of a ship and a ship itself differ only inasmuch as the characters and parts of the ship which any given mind apprehends may be far fewer than the totality of its characters and parts. But except for omission there is no difference in logic or existence. Thus it is true that things are associated just because it is true that ideas are associated. And the application to our previous discussion is obvious.

The word redintegration need not cause any difficulty. It suggests indeed, a process of reproduction in which the mind, from the residues of the past that have lingered on into the present, weaves a present image resembling the past. But this interpretation is quite unnecessary. Redintegration is rediscovery, just as the earlier integration implied was originally discovery; for we do not make conjunctions and connexions but find them. Redintegration is a review of former things in which these former things themselves gradually reappear. And it is not surprising that we should frequently have to explore the past a good deal before we can find the things we wish to find.

These conclusions are significant for the general theory of memory. The possible objects of memory, in the widest sense, and the possible objects of association are one and the same. The differentia of memory is only the accompanying awareness of previous occurrence, an awareness ranging from specific recollection to a dateless sense of familiarity. And the possible objects of association are the whole funded wealth of the mind at any time. Association is not, of course, the whole of thinking. On the contrary it presupposes an integration which is not itself association. And neither it nor memory permits of novelty or fresh discovery. But they are the accumulation of all our previous discoveries, and these discoveries are remembered or associated with varying degrees of definiteness. They include 'free ideas' whose significance has once been noted, universals and their connexions previously apprehended, specific and unique recollections, generic ideas whose peculiar contour, as in a composite photograph, has been rubbed off by frequent reappearance in different contexts, ideas 'corroded, melted and decayed,' ideas near the fringe of consciousness, pe-

numbral and subconscious ideas which are mere traces of their former selves. All these are associated in fundamentally the same way, and they cannot differ essentially when they are also remembered. Thus one and the same analysis must apply to recollection and to memory generally. Any idea which is conserved is conserved because the mind is always gripping over into the past, and reattaining, consciously or subconsciously, part, at least, of what it previously attained. The mind retains these ideas as past, whether as unique in the past or as coalescing in the past. The traces are not present traces, but literally portions of the past however fragmentary they may be. They are not the past as it has now become, but the past literally as it was except for inevitable omissions. And these omissions are the real meaning of corrosion or decay.

Some confirmation of the truth of this view may be obtained from the unwitting corroboration of its opponents. It is universally agreed that phenomena of perseveration and 'recurrent images' are instances neither of memory nor of association. And the principal reason stated is that these phenomena are actually present when they are experienced. But what are recurrent images, such as those which a tired huntsman has, when he suddenly feels himself posting or taking a fence although, in fact, he is sitting comfortably before a fire and the hunt is over, except the present reproduction of the day's experiences? And what is perseveration except the continuous reproduction of the same? These images are not memories precisely because they are present. It is the past, *as past*, that must be retained in memory; and this analysis holds of memory in all its forms, from explicit recognition downwards.

A difficulty, however, seems to arise in connexion with a point which M. Bergson has made classical.[1] There can be no doubt that he is right in maintaining that there is a fundamental difference between recollection and habitual repetition. But the more important question is whether this habitual repetition does not imply elements of the same kind as recollection and whether these are not strictly the only memorial parts of it. When a schoolboy says, for instance, that he remembers the first few lines of the *Æneid*, or the proof of Euclid, I., 47, it would be absurd to cavil at the propriety of his language, but it is legitimate and necessary to ask what precisely he means. He means, no doubt, that he has learned these things in such a way that he can repeat them correctly at will. But this repetition in each

[1] *Matière et Mémoire*, chap. ii., pp. 75 *sqq*.

case is genuine reproduction, and a fresh actual performance each time it occurs. The boy can utter again the same words as he formerly uttered in conning over his lesson; and he can either repeat the very words which stand on the well-thumbed pages of his Euclid, or else, if he is intelligent, rethink what he formerly thought when he grasped the import of the proof. This power of repetition may, and frequently does, persist when specific recollection of the process of learning or of its attendant circumstances has disappeared. And the difference between it and recollection seems very marked. If the boy can recollect as well as repeat, it is plain that his recollection of, let us say, the third or fourth occasion on which he conned the lesson over, is very different from the mental processes which are normally serviceable for repetition. Indeed, if he fixes his attention upon this particular occasion or upon any other the process of repetition is sensibly checked.

Mere habit, however, is not memory, except by an abuse of words, just as it is only by metaphor that we can say that a newly-born infant remembers how to breathe because of the ancestral habits that are strong in him. And the new performance itself, the reuttering of sounds or the rethinking of relationships is not memory either, but simply a piece of present existence. The process is called memory because of the ideas which guide the new yet habitual performance; and these ideas are old ideas. Thus there is no real difficulty, or paradox even, in maintaining in face of these facts, that memory is always the apprehension of the past. And the apparent difficulty that recollection may impede the process of repetition is not a genuine difficulty. The purpose of recollection, in this instance, is to keep the attention fixed upon the specific event recollected. The purpose of memory or recollection as a guide to repetition is to keep the attention upon past ideas only in so far as these may serve to guide the repetition, and if the mechanism of repetition is in good order a very slight guidance of memory proper may suffice. Indeed there is always a tendency for the repetition to go on when the attention is diverted. It is not surprising, therefore, that this difference in purpose should lead to a difference in result; but the facts do not show any difference in kind between different forms of memory.

The relation between remembered ideas and the mechanism of repetition is simply the law of ideo-motor action according to which attention to any idea always has a tendency to issue in movement of some specific kind. The process of learning, in the ordinary sense, consists in establishing this

connexion so firmly that there is no danger of hesitation or failure. And there are some interesting consequences of this fact. The motor effects of memory may be, and frequently are, incipient and abbreviated rehearsals instead of adequate performances, and it seems to be established that there is motor rehearsal of this kind whenever there is memory, thought, or association, even if only a nascent articulation of words. This explains part of the meaning of those psychologists who claim that there is always a great deal of nascent present imagery in memory, association and recollection. There are always nascent movements in the case, and these are felt to be contemporaneous with the act of remembering. But the more important feature of memory is the renascence of the past in the sense that objects formerly apprehended are apprehended once again.

We should conclude, then, that there is only one kind of memory, *viz.*, apprehension of something experienced at a previous time. We may recollect this and recognise it explicitly, or we may have forgotten its earlier context, and have no recognition of it except a vague feeling of familiarity. The theory that there are two kinds of memory is due to confusion between memory and repetition. Memory is never repetition in any of its forms, and the confusion depends in its turn on verbal ambiguity. We frequently say, it is true, that we remember a thing when we mean primarily that we can repeat or reproduce it. This power of repetition was learned in the past, but it is not memory at all. It is merely connected with memory owing to the circumstance that the memory, however indefinite, of something formerly experienced guides the repetition in most, if not all, of such cases.

It remains to consider some of the implications of the theory of this paper. It is tempting to hold with Freud and his followers that nothing is ever totally forgotten however difficult the process of recall may be in most instances. This theory implies that everything experienced in the past is for that reason inevitably before the mind at all subsequent periods of its existence. In that case the greater part of the field of memory is always so dim that we are not conscious of it at all, and even the sense in which we may be said to be subconsciously aware of it seems strained and unconvincing. On the other hand, those who dissent from this theory must at least admit that no limits can be set conclusively to the power of memory. It is not only the classical instances of long-forgotten languages spoken in delirium, of the man who described in a fever all the circumstances of an operation which he had undergone fifteen

years before when in a condition of complete stupor,[1] or of the abnormal cases of recall in hypnotism, that show how rash most generalisations on this subject may be; nor merely the extraordinary memory of Mozart or of a hero who, like Panurge on his first meeting with Pantagruel, can speak ten different languages though starving with hunger the while. All of us remember, at times, some trivial instances in a buried past which startle us by the mere fact that they are recalled, and all of us may reach a day in which second childhood redintegrates childhood's memories. We cannot say of anything we notice at any time that we are absolutely certain we shall forget it utterly before long.

On the other hand, as we usually suppose, forgetting may be the rule and remembering the exception, and the past may often be obliterated as thoroughly as a child's castle in the sands is effaced by the waves. The truth may be that only a little of the past can ever reappear clearly in memory, and that only a little more can reappear dimly. If that be so the fact of memory is simply that when anything is observed which resembles something that has formerly been observed, then it is possible, and sometimes happens, that the mind can attend once more to the original which the present object resembles, with the addition that this possibility is more likely to become an actuality when some condition like the frequency, vividness, recency, or interest of the remembered object is fulfilled. And it may be objected that such a theory is merely a statement of fact and not an explanation.

The sufficient answer to all such objections is that the first requisite both of psychology and of theory of knowledge is to accept the facts as we find them. If the fact of memory is direct acquaintance with past events themselves, the most reasonable plan of investigation is the analysis and description of this fact. The fact itself is as ultimate as the fact of knowledge, and the presence or absence of an adequate theory of its conditions in terms of anything else is beside the main issue. If a theory of memory based on the nervous system or anything else makes the occurrence of the known facts more intelligible than they would be by themselves, good and well. But even if there is a proved connexion between memory and the nervous system and an utter lack of any tenable hypothesis concerning the precise character of this

[1] See Abercrombie, *The Intellectual Powers*, Part III., sec. i. The instances in this book seem to be authentic, though the proof of their authenticity is not usually circumstantial enough to satisfy the requirements of the Society for Psychical Research.

connexion, the facts of memory are not thereby impugned. The *lacuna* in this case should be regarded as the beginning of a quest and not as an obstacle. The case is different if the facts themselves are misdescribed and science hindered by an insistence on features which do not belong to them. And the justification of discussions such as the present one is only that it attempts to show some of the fundamental characteristics of a true analysis.

IV.—WHAT IS FORMAL LOGIC ABOUT?

By Arthur Mitchell.

I. The Presupposition Common to Intellectualist Tradition and to Pragmatist Criticism.

The traditional intellectualist conception of the logical interest as the nature of thinking, or reasoning, is a presupposition shared by recent pragmatist criticism. The pragmatist impugnment of the traditional logic not only countenances this presupposition, but explicitly rests its case upon it. Thus Schiller, who thinks that formal logic is an essentially futile enterprise because it is more than two thousand years old and still a muddle, finds "not only that ordinary human thinking continues to pay scant respect to Logic, but that the logicians themselves continue to differ widely as to the nature, the function, the value and even the existence of their science. . . . To be a consistent Formal Logician is probably beyond the power of any man, psychologically as well as logically, and even the greatest formalists do not find in their 'Logic' complete intellectual satisfaction, and may not infrequently be caught deviating from their ideal into excellent sense."[1] The dedication of Mercier's *A New Logic* commemorates a long friendship "variegated by many a strenuous argument, begun, continued and ended without recourse to the syllogism". In the Preface, Mercier says, "I find that valid conclusions can be reached only by strictly departing from the methods of Traditional Logic. . . . Its whole system is insufficient, defective and erroneous from beginning to end." And Sidgwick's recent *Elementary Logic* is divided into two parts, the first of which teaches logic "as she is taught," as a subject to work up for an examination; the second part is a wholesale repudiation of the first, and is written with the single aim of forestalling risks of error in reasoning, inasmuch as the traditional logic is a danger to all who think as well as a nuisance to all who have to pass examinations in it.

Thus the point on which this pragmatist indictment turns

[1] *Formal Logic*, pp. vii. and xi.

is that the traditional logic is a false account of thinking or reasoning: thinking pays scant respect to it; our conclusions are otherwise arrived at; it is a danger to all who think. The criticism is focused upon the intellectualist bias for a certain syllogising conception of thinking. The correction is to consist in a shift of emphasis from the intellectual and abstract to the intuitional and concrete mode of consciousness. The disputants in such a controversy should go into training; the last word will belong to the physically fit. For the logical interest is not the nature of thinking, at all; and if the matter, method and validity of a science depend on its defining interest, these present *casus* of the war about logic must remain world without end untouched by the issue of any controversy concerning the nature of thinking.

II. Two Sources of Difficulty in Scientific Abstraction.

There is nothing queer in the fact that the matter and method of logic has not, even up to the present late date, ever been well defined. The intellectual feat called "scientific abstraction" means, for one thing, that, from the tangle of motives to cognition which the data of concrete experience involve, one such motive, or interest, is sufficiently extricated to be capable of a satisfaction of its own, somewhat independently of the rest of the snarl. This abstraction of science, however, is toilsome and progressive, not achieved at a stroke, perhaps never so thorough that it may not be bettered. It seems to be made difficult notably by either of two characters of experience. One is the intersection, in the self-same concrete matter, of interests that are mutually irrelevant and therefore apt to darken the scientist whose eye is not single. Consider the fact of *meaning*. Dizzying fact! Dizzying because it is so difficult to consider it with an eye single to one at a time of the enchaining interests that meet therein—its psychology, its epistemology, its ontology, its rhetoric, its logic. So difficult not to tangle all these absorbing *ways* of considering it into a snarl of threads baffling to continuity and sequence in the following of any of them.

And then—for the other notable stumbling-block to scientific abstraction—there is the conditioning of one science by another. Prof. Marvin's contribution to *The New Realism* elucidates (on pages 45 and 46) this relation between sciences. Mathematics conditions mechanics and physics in that, while investigations in these latter sciences could be

faulty without implying mathematical error, errors of arithmetic inevitably falsify study in the dependent sciences. Unless a large part of mathematics be true, these must be totally false. They have their own degree of abstractness, but the mathematics which conditions them is therein a degree more abstract. Now, the problem or interest defining the mathematics pure of mechanical and physical enrichments is distinct from that of any science thus dependent, but very confusible with it. That man suffers from such obscuring of an abstracter interest by confusion with an interest more concrete, who can seriously make a difficulty, in the arithmetical law that one plus one is two, out of the fact that a drop *combined with* (a relation involving "plus" but more beside) another drop is one drop instead of two drops. Teaching geometry to school children affords instances of similar obscuring of scientific interest by confusing the interest proper to geometrical exercises with more concrete matters. The difficulty is just to dissever matters of purely geometrical definition from the concreter mechanical and physical phenomena which involve in their definition the geometrical characters, but involve new determinants beside, external to geometry. The frictionless geometrical rotation of points, lines or surfaces is thus involved in physical turning; but this latter adds alloys of friction and abrasion and consequent excentricity.

III. These Difficulties are at the Maximum in Logic.

Now, when these two primary difficulties in the way of good science are properly taken into account, it is no longer queer, and of course it is not prejudicial at all to the existence of a distinct logical interest, if even the most illustrious doctors of the science have kept on from the beginning until now perpetuating obscurations of this interest by inherited habits of confusion with other issues; since, in the first place, every datum of experience, whatever, is a datum of logic, which means that logical material is involved in the maximum of intersection with other interests; and, in the second place, logic is precisely the ultimately fundamental science, conditional, that is, to all science, "science of science," as Aristotle said. So the difficulty of adequate abstraction in logic is the very limit of this kind of difficulty; and whether or not a designated method in logic, *e.g.*, the intellectualist, may be at fault, the muddled state of the science after a long history—no matter how long—is itself not an indication that the method in question is faulty, but that its application has

lacked rigor—in short, that the determining interest is ill-defined. Let it be recognised that the state of logical matter and method has always been confusion. Logic is indeed the most ill-conceived, disorderly—in short, illogical—of the sciences. But this, instead of being occasion for surprise or suspicion, is what ought to be expected. It is, no doubt, equally natural that the intellectualist logic, which Schiller insists means nothing,[1] has always been a bugbear to the type of mind which is temperamentally averse from analysis and abstraction. Such ground of objection to formal logic, however, is invalidated by the mere existence of the world-old interest out of which the enterprise is generated.

IV. The Confusion of Logical Issues with Others.

Thought has its objective content, to be sure, and this is matter of science—of logic, in fact. But it is only inasmuch as thoughts are *meanings* that they are matter of logic; for the matter of logic is assuredly meaning, as the word testifies. *Lego* differs from *phemi* as *dico* from *loquor*, *dire* from *parler*, *sagen* from *sprechen*, *say* from *speak*. No one ever regarded logic as science of speech (even if, by a confusion of terms, some have said they do regard it so), because speech is not essentially significant. Saying *is* essentially significant, even when it is careless. Meaninglessness is no defect of speech, and is a defect of saying. And because saying materially coincides with some speech or other, words, too, become matter of logic; but they are such, as thought is such, only in so far as they are meanings. If there be meanings which are not thoughts—if, peradventure (I do not say it is so), perceptions, memories, ideas, for instance, are to be regarded as not thoughts, sometimes or always—then logic is science of more than thought, thought even objectively interpreted; since any case of meaning is its matter.

But the trouble, for the rigorous abstraction of the logical interest, is that its matter, which is meaning, is infested with a swarm of ambiguities due to the intersection, in any actual case of meaning, of so many interesting factors. Whatever be the decision about the denotation of "thought" and that of "meaning," certainly in many cases of meaning, if not in all, some one thinks and judges, or even reasons and infers. But logic is not on that account, or on any account, science of laws of thought or of inference, any more than experimental physics is science of laws of perception because whenever one experiments he perceives. The two systems of laws,

[1] Mind, 82, p. 246, and *Formal Logic*, p. ix.

the two sciences, that of the phenomena of thinking and that of what is thought, are distinct in the same sense as auditory psycho-physiology is distinct from acoustical physics: the nature of one's hearing is one thing—matter of psycho-physiology;—the nature of what one hears, another—matter of acoustical physics;—although both factors enter indispensably into any actual case of sound perception. So the nature of one's thinking is one thing, and is the business of ratiocinative psychology, while the nature of what one thinks is another, and is the business of logic; although they are equally indispensable factors in any actual case of thought. The proposition that we don't think in syllogisms would, if true, be nothing against the validity of the science of the syllogism, which science has no concern in the nature of thinking, be it right thinking or wrong, and does concern something else, namely the nature of what is meant. And if whatever is meant can be shown by analysis to be of syllogistic structure, why, then any principles that determine the nature of the syllogism have of course all sorts of importance for the science of what is meant, and will rule the development of this science to the end.

Again, in any case of meaning, some relation or other necessarily exists between the subjective and the objective content of the meaning. But logic is not on that account, or on any account, science of such relations, any more than is chemistry or any other science: in all the data of any possible science such relation is involved. Principles determining the nature of truth and error have just the same relevance to logic that they have to chemistry: it is needful that the study be true, but the nature and conditions of truth in general and of specially chemical truth are external to these sciences in that their respective interests are neutral to any answer to such questions.

This intimate involvement with psychology and epistemology has bedeviled the issue of logical problems and vitiated the method proper to their solution. So has involvement with ontology. Whenever one means, the objective content of the meaning has its status within the realm of being, a status ordered with others by principles determining the abstract and the concrete, the fictitious and the actual, the universal and the particular, the hypothetical and the categorical. But logic is not therefore science of the ontology of meaning-content. The existential import of propositions is a problem as external to logic as that of cosines to trigonometry. Or the place in the order of being which is occupied by universals, the problem what a universal may be, in the

last analysis—such a problem is an impertinent distraction from logical study, quite as the problem of the being of angular magnitude would be to trigonometry. Angular magnitude is *definable* with an accuracy that is satisfactory and final *for the purposes of trigonometry.* For the purposes of logic, so is universality.

V. The Logistic Definition of Universality.

The elucidation of the logistic definition of universality constitutes whatever properly logical material is contained in the jungle of irrelevances labeled "Induction" in treatises on logic. The significance of the "Principles of Elimination" and the five "Causal Methods" derived from them is deep and wide, and logic has its stake in their discussion, since causation is a complication of the relation of ground and consequent, in which logic finds its category of universality. But the interests and purposes of logic are largely lost sight of in the expositions of "causal method". In these discussions analysis discloses, in various proportions, the epistemological interest in the notion of necessary connexion, the ontological interest in notions of identity and temporal process, the psychological interest in mental operations constituting the phenomena of scientific generalisation. The fascination of this pregnant concept of causation has so beguiled the authors of logic that a teacher of the subject who has any conscience finds himself in an absurdly puzzling and apologetic situation. Apparently everything that has occupied attention under the name of Deduction is now abandoned, and integration of the new business in the self-same fundamental problem of logic with "Deduction" is, for the best of reasons, left to the conjecture of the student. Why "Part Two," in the development of a unitary scientific system? Why, in the name of Aristotle, why "Induction"? That "best of reasons" referred to is the fact that there has been no "self-same fundamental problem," all along.

The five causal methods, which are reducible to two, are derivatives of two principles of elimination: That is not the cause of P which is

(1) absent when P is present (*i.e.*, not indispensable),
(2) present ,, P ,, absent (*i.e.*, ,, adequate).

Positively stated: Cause is the name for that physical condition which is both indispensable and adequate. Any indispensable physical condition is a positive factor in the cause; any adequate physical condition contains the cause; neither precisely defines it. Their logical product does so, and is

the adequately indispensable or the indispensably adequate physical condition.

This definition of cause equivaluates it with its effect; for, if either is less or other than the other, the cause is either not indispensable or not adequate. Causality is then, by such a definition of cause, not, strictly speaking, a genuine relation in the physical department of being. And it has no meaning outside the physical. It is, rather, the common limit of two variables: (1) more than indispensable adequacy of physical conditioning, (2) less than adequate indispensableness of physical consequentiality. Which are genuine relations, since they involve, as causality does not, distinctness of terms. These relations are asymmetrical, and they constitute opposed aspects of a single relation. And this relation is the fundamental physical reality. Its surd limit was designated above "causality". It will be convenient, without consulting etymology, to distinguish the significant reality from its limiting surd by the term "causation". The cause-of-effect sense of this relation applies to a meaning (thing or event) in its character of adequacy of physical conditioning: by virtue of being an adequate physical condition a meaning is a real cause. The effect-of-cause sense of the same relation applies to a meaning in its character of indispensableness of physical consequentiality: by virtue of being an indispensable physical consequence a meaning is a real effect. Why not *inevitable* consequence? The effect is inevitable, no doubt; but its consequentiality is an indispensable constituent of the nature of the cause, in the complete explication of the latter.

Now, the regulating idea of empirical science is ("pure") causality, and the two irreducible causal methods have for objective the approximation of "causation" to "causality". Agreement eliminates inadequacy, in theory; difference, dispensableness. But analysis of nature presents technical or pragmatic limits which prevent realisation of the identifying limit of this approximation of naturalistic research to the research of science "pure" of involvement with nature. If "nature" is that department of being which is spatial-temporal, "pure" science becomes that ultimately abstract discipline which is conditional to empirical science, and whose matter is the principles determining the modes not merely of spatial and temporal concretions (the modes of causation) but of conditioning in general. Such science I take to be equivalent to the view indicated above of the nature of logic.

The generic relation of determinate conditioning, namely

implication, comprising non-causal as well as causal determination, must, like causation, in order to be a genuine, significant relation, involve distinctness of terms. The limiting surd of such relation, in which the conditioning is at once adequate and indispensable, and wherein distinctness of terms vanishes, defines the logical term "identity" or "sameness," which has thus the character, in common with "causality," of common limit between two variables, the former two now generalised as (1) more than indispensable adequacy of conditioning, (2) less than adequate indispensableness of consequentiality; which again are mutually opposite senses of a single asymmetrical relation, in this case implication. The ground-of-consequent sense of this relation applies to a meaning (term or proposition) in its character of adequacy of conditioning; the consequent-of-ground sense of the same relation applies to a meaning in its character of indispensableness of consequentiality. The relation of determinate implication then defines the logical term "universality," with its two senses of universal-particular (ground-of-consequent) and particular-universal (consequent-of-ground): by virtue of being an adequate condition a meaning is a universal; by virtue of being an indispensable consequence a meaning is particular.

VI. The Conditional Priority of Logic.

It seems almost unnecessary to remark that Schiller's charge that logic means nothing, and Mercier's that it is a silly game of spoof,[1] are not validated by the fact that the system of phenomena to which the laws of logic apply are neutral to any theory of reality. In any sense in which such charges can apply to formal logic, they apply to every other science, to science in general. For the validity of any scientific system depends on an ontology, tacit or explicit, which is applied to it. Every science is, in itself, a game, if you like, in this sense. Whether it is silly or not depends on whether or not the phenomena with which it deals enter in any determining way into interests that are serious. Seeing that there is no interest which the logical system does not determine, logic can hardly be silly.

Indeed, that is a conspicuously sound and important idea of Aristotle's (from the intellectualist point of view), that logic is science of science. Logic is not, because it is of like objectivity with other sciences, on that account logically coordinate with any science. Logic is logically prior to all

[1] Mind, 92 and 93.

other sciences in the sense that the fecund system of objective meaning (of objectivity, in short) is conditional to the facts of any science, while the converse is not true. The logical system bears that asymmetrical relation to science in general, and to every science, which mathematics bears to mechanics and physics. To every science? This would seem to require that logic condition itself; a paradox, if you like, of the same order as the idea of self-consciousness. But it is no more paradoxical than that; and equal rights may be claimed for this twin brother, in view of a certain explanation of the idealistic disposition to conceive the object-matter of logic as subjectively determined. This is due to confusing two distinct concepts, logical conditioning and epistemological polarisation. Being is polarised in objective and subjective aspects or serial orders, which imply each other in the sense that each conception—objectivity, subjectivity—depends on the other for its meaning. But this co-functionality or co-implication of the polarised aspects of being is not a conditioning of either aspect in the sense in which objectivity conditions the subordinate objective systems of meaning. For this polarisation is a reciprocal or symmetrical relation, which the conditioning of logical determination is not. They are therefore mutually distinct relations.

If the notion, then, "science of science" seems to involve a regress to infinity, the ineluctableness of this regress is at any rate no more vicious than its subjective counterpart, in self-consciousness. In whatever sense the subject is capable, without contradiction, of playing object to itself as subject, in the same sense, I should say, it is inevitable that objectivity, the logical order, conditioning all objective systems, of which itself is one, must be capable of playing condition to itself as conditioned. Any transcendentalising that may be required in the subjective aspect of being is equally inevitable in the objective aspect!

VII. The Objectivity of Logic.

Whatever may condition the logical system, and on any epistemology, whether realistic, idealistic or transcendental, the logical system, of *what is meant*, is a phenomenon as empirically given as a geometrical or a railroad system, and of a definition, and hence an objectivity, as indefeasible as theirs.

The objectivity of logic is implied by any epistemology that is not sceptical. For it is implied in the affirmation

that a meaning means something distinguishable from the psychological process, the "state" of mind which is the meaning act. Granted that a meaning is necessarily meant by somebody in particular; granted that, as part of the content of somebody's consciousness, a meaning is subjective: still, if nothing is a meaning unless it is meant by somebody, neither is anything a meaning unless it means something; and this is to say that, if a meaning has subjective content, it has also objective content. Why "also," if they are an identical element of diverse contexts? Because the contexts are diverse. The nature or essence that is meant may be, and even must be, less than exhaustively comprehended in any assignable subjective content. If one means a material thing, the distinction between the subjective content and the objective content of the meaning is the distinction between a certain detail of the conscious figure or pattern and something indefinitely more, something which develops, under continuous inspection, an inexhaustible fecundity of essence which no percept or image begins to exhaust. So, too, if the meaning is an immaterial entity, a circle, say, or the national constitution, again the subjective content is a "state of mind"; the objective content a formidable system of determinants whose complete explication overwhelms any possible effort of comprehension. Only such comprehending state of mind, to be sure, is the meaning so far as the meaning is yours or mine or his—so far as it is subjective. But something *else*, the uncompromising, fecund essence itself, is meant.

The truth of this contention depends, I say, only on the fact that a meaning state of mind *presupposes* something meant, by the necessity of its own nature. The case in which the presupposed "something meant" is a certain logically prior content of the same conscious continuum which comes to refer to that prior content of its own, in proceeding to mean it, is no exception, since here too the meaning state of mind is a referring to what, in the nature of referring (as a relation), must be distinct from that which refers. If relatum and referent be identical, there is no relation, no referring, no meaning. And to find what is meant to be thus other than the act of meaning it, is to find it objective, to find that the meaning has objective content, something capable of a variety of relations to the content comprehended in the meaning state of mind, the subjective content. Any and every discourse is objective, without a doubt. An unobjective fairy-tale or fantasy is merely an unmeaning one. It could not interest even its author. An

unobjective reverie would be, just so far as it is unobjective, not merely nonsensical, in a certain loose sense that permits of an irresponsible or trivial meaning, but strictly and absolutely meaningless, so as to lack even humour or whimsicality.

Every meaning, then, is public and common, an objective datum for systematic scientific investigation and analysis. This must be the case, I say, since, being meant, it is, in that fact, recognised and therefore necessarily external to any state of mind that finds itself in a position to recognise it. In the case of the "intra-conscious" meaning, the mark and proof of objectivity of what is meant is just what it is in any other case, its inexorably determinate fecundity. The meanings which enter into the fantasy *involve*, they uncompromisingly *imply*, no less than those of sober science. The fun or relaxation of fantasy is an irresponsible, contradictious attitude toward these inexorabilities. All pith and point in it depends absolutely on recognition of the necessities so flouted, without which recognition their flouting were flat as gibberish. The objective order is the order of systematic determination. What is meant is found to be determined in no respect by being meant, but only by laws whose origin is external to the nature of any comprehension that may mean this content. Which laws, determining the system of objective meaning, are, by definition as a system of data, matter of science; and if logic is science of meanings, then this system of laws, and this alone, is what logic is about.

This world of meanings, however, which is the sphere of logic, is evidently everything whatever, the entire universe of being, and is therefore infinitely more extensive than the spatial-temporal world of "real things," if "real" is a limiting term. The sarcasm of a recent writer[1] against the traditional principles of categorisation, "Just deny something of somebody, and it is true of somebody else," is pointless, once the "extension" of valid meaning-content is rightly considered. There must indeed be (though its nature may or may not permit it to enter space or time) some valid meaning which is distinct from any given meaning, in any assignable respect; otherwise the latter meaning is indiscriminate, and so not meant. This is undoubtedly the same as to say that there must be something of which any designated predication is true, in order that it should be possible for anyone to have become aware that it is untrue of some-

[1] L. E. Hicks, "Euler's Circles and Adjacent Space," MIND, 83. Also "Is Inversion a Valid Inference?" *Journal of Philosophy, Psychology and Scientific Methods*, vol. ix.

thing. If it be remembered that all the Non-Smiths and also all the Non-Joneses are (not "sombodies," of course, but *are* indefeasibly) genuine meanings, with all the objectivity that anything in the universe possesses, it is inexcusable to say that inversion means it is all one that Smith is honest and that *Jones* is dishonest. It is not, strictly, "all one" to the inversionist even to say that Smith is honest and that some Non-Smith, indeterminately, is dishonest, although the former does assuredly imply the latter. If they were "all one," however, the latter must also imply the former, which it does not. The inversionist does see that we can know Smith as honest only in the conditions of an experience which has revealed a meaning of Non-Smith character that lacks this very quality belonging to Smith. But it makes all the difference in the world that the Non-Smith character of this necessary meaning is not implied in any respect except the lack of honesty. It is not implied in any of those further respects which are indispensable to constitute it Jones—or even human, or animate, or so much as actual (spatial-temporal). There is no case against Jones, at all—so many things beside him are capable of lacking honesty.

VIII. The Co-Functions of Meaning.

Three meanings of the word "meaning" are distinguishable. A case of meaning in the psychological sense I take to be a certain mediation between conscious subject and his object; in the epistemological sense, a mediation between subjective and objective content. In the logical sense, then, a case of meaning is, distinctly from either of these, a mediation between *determinants of definition*. However singular a significant term may be as a linguistic element, its individuality is not absolute, but shot through with the system of co-subsistence. For a character (essence, attribute), implies a case of being, to serve as the locus to which the character belongs or applies. And to be, at all, is to be *somehow*, and so to imply a mode of being, *i.e.*, a character. Subject and predicate are thus no less essential to logical term than to proposition, since the fact of logical meaning, whether as term or as proposition, is fundamentally this co-functionality of locus and character that is essential to the constitution of experience and is the method of that mediation between terms which defines the proposition. The logical term as well as the proposition is constituted of three elements. The term is analysable into a character, a locus to which the character applies, and mediation by

co-functionality between them. A proposition is analysable into two terms and a mediation by co-functionality between a variable segment of the locus of one term and the character of the other. The predicate is the "somehow" of a case of being which is the subject, so that the logical element symbolised by the verb "be" is co-functionality between a locus and a character.

To say that the character and locus determine each other essentially is the same as to say that any possible relationship, since it is necessarily a relationship between two meanings, is at one and the same time a relationship between characters (a qualitative relationship), reducible to some form of co-subsistence, obversely independence, between characters; and, on the other hand, a relationship between loci (a quantitative relationship), a case of community, obversely exclusion, between loci. And no criterion, in fact, appears, by which, on one hand, community or exclusion between loci is definable, except co-subsistence or independence between the characters which respectively apply to them; no criterion, on the other hand, by which co-subsistence or independence between characters is definable, except community or exclusion between their loci of application. The point is, then, that a "purely" qualitative relationship is as absurd as a "purely" quantitative one. Each is an illusion depending on a certain complexion of cognitive interest. An objective meaning that is naturally insusceptible of quantitative as well as of qualitative interpretation, is, by the co-functional nature of meaning, impossible.

This co-functionality between character and locus, in meaning, I take to be the fundamental principle of logic, and the truth aimed at in the absurd tautologies styled the Law of Identity. The intelligible meaning of the law depends on conceptually distinguishing, as co-functional aspects of each other, sameness (oneness of character) and identity (oneness of locus). It is then no tautology that no *two* meanings (meanings of mutually external application) are *same* (of common character).

This is an inverse co-functionality. Infinity of meaning is not indefiniteness, since infinites are relatable, as, *e.g.*, in summation of the distances from a point to opposite poles, or inclusion of either of these infinites in their sum. It is therefore true that a meaning that is infinite may, for that reason, necessarily involve infinity in each of its co-functional aspects; while, at the same time, if the denotative infinite and the connotative were distinct magnitudes, their both possessing the co-efficient "infinity" would not of itself prevent their

sustaining a definable magnitude relation to each other—such, for instance, as inverseness.

An inverse relation between them is demonstrable. Thus, the infinite denotation "white horses" is contained in, or less than, the infinite denotation "horses". Now, the connotation of the meaning "white horses" is infinite in that its co-functional locus is included by qualitatively distinguishable loci the number of which is unlimited. And this connotative infinite is *not* contained in, or less than, the connotation of the meaning "horses" (as the denotations of the two meanings are related), but inversely.

That the character as well as the locus of a meaning is a magnitude follows from the co-functional principle. For, any meaning, A, generates two meanings, "Character of A," A_c, and "Locus of A," A_l; each of which derivative meanings generates two meanings, $(A_c)_c$, $(A_c)_l$ and $(A_l)_c$, $(A_l)_l$, respectively. And so on, *ad infinitum*. A character is thus, *qua* meaning, itself a magnitude; it has its own denotation, or quantity.

But it is also true that the meaning "Character of A" is a magnitude of different order from the meaning "Locus of A"; their connotative coefficients, A_c and A_l, are incommensurable. No common denominator mediates a numerical ratio between them. The co-functionality of meaning, generically, has therefore an important difference from the specific relation between trigonometric co-functions. Acute angular subtension is of such a nature that positive values of both sine and cosine are essential to the principle (acute angular subtension) that generates their co-functionality, just as positive values of both locus and character are essential to the principle of logical mediation. In both cases, when either co-function becomes zero, so does the principle. Here the analogy ceases. For, when sine or cosine is zero, its co-function is unity; whereas, when the logical function is zero, its co-function is not unity, but zero also. The difference is that the trigonometric functions are constitutive parts of a unit magnitude, and, so, commensurate; while the logical functions are not constitutive parts, but aspects, of the meaning; and the nullification of an aspect is the nullification of any co-aspect.

IX. Definition and Proposition.

The presupposition of genus and differentia, in definition, involves a limit, in which the genus is undifferentiated, and

so not defined. Its quantity, exhausting all being, cannot be confined in definition; its quality is (by hypothesis) void of defining determinants (differentiæ).

But this metaphysical predicament is beside the logical interest and responsibility entirely. The achieved objective fact of meaning, as a datum of experience, expresses its nature as a segment or locus of being, in positive ratio to total being, and qualitatively determined by a character indispensable to the distinguishing of *this* segment from any other. The ratio is not a mathematical quantity, evidently; it is not, that is to say, numerable; but it is none the less definite, by systematisation in an internally related quantum. So, too, the tale of its indispensable attributes is infinite yet definite since it excludes other attributes, even to infinity, whose possession definitely differentiates other meanings from it.

Furthermore, and corollary to the above, the precise determination of a meaning involves both position and obversion, in that the exhaustion of its locus by a definite segment of being is *pro tanto* its exclusion of and from remaining being; its implication of certain attributes, indispensably, is *pro tanto* its incompatability with the attributes indispensably implied by segments external to it. The limiting case of definition, when considered in this polarised way of absolute position and obversion, falls apart into antipodal surds of definition, *viz.*, identity and dichotomy; surds because identity reduces to mere naming, dichotomy to logical "circularity". Position in terms of locus is equivalent to, because co-functional with, obversion in terms of character; and *vice versa*. The formulation of identity in analogy with that of significant definition requires distinctness as well as mediation between terms; the formulation of dichotomy requires mediation as well as distinctness. But these requirements involve employment, as significant terms, of the limits of abstraction, to wit "being" and "essence," which, mediating all possible relatedness, are not possible terms, themselves, of any relatedness. The formulation of identity in analogy with significant definition becomes: "Nullity of essence plus S-ness". Evidently the quantitative formulation co-functional with this qualitative formulation is the dichotomy: "Universal being minus the Non-S's". The former pseudo-relation is equivalent to the mere naming of S-ness, since the term first expressed is null; the second begs the quantitative determination of the locus "S's" in its pseudo-determination of this locus by reference to the locus "Non-S's," which depends on S's.

To sum up: Identity and dichotomy are antipodal surds of significant relation. Identity contradicts *distinctness:* at-

tempt to formulate it in distinct terms nullifies one of them. Dichotomy contradicts *mediativeness*: it distinguishes "the whole" from "the remainder," in order to divide the whole. But "the remainder" is not a significant predicate of "the whole"; for it, again, is null. And no other predicate, by hypothesis, mediates between the divisions of "the whole".

Genuine, or significant, relatedness (*i.e.*, logical mediation) is therefore necessarily a case of non-identical community (obversely non-dichotomous exclusion), if it be expressed in terms of locus; or, in terms of character, it is a case of discriminate co-subsistence (obversely non-disjunctive independence). Regarding the two "senses" of asymmetry as distinct relations, the genus "Logical Mediation" is exhausted by four *sui generis* types of concrete relational complex. Adequate determination of any possible relationship between two given meanings, S and P, necessarily subsumes it, therefore, under one or other, exclusively, of these four *sui generis* types; and *any* determination of any possible relationship necessarily subsumes it under one or more than one of the abstract elements of relationship into which the concrete complexes are analysable. The *sui generis* types of mediation are the following: In terms of locus, (1) Inclusion of S's by P's; (2) Inclusion of P's by S's; (3) Intersection and (4) Externality between these loci; in terms of character, (1) Implication of P-ness by S-ness; (2) Implication of S-ness by P-ness; (3) Mutually independent co-subsistence, and (4) Incompatibility between these characters. The abstract constituents of these are, in terms of locus, (1) Community; (2) Exclusion; (3) Inclusion; (4) Externality; in terms of character, (1) Co-subsistence; (2) Independence; (3) Implication; (4) Incompatibility.

Intentionally or not, objection to that calculus of meanings which is based by traditional logic on these latter fundamental types of mediation, implies that quantitative determinations are possible, and that spatial determinations, notably, are representable, independently of qualitative determinations, and are so represented by Euler's circles; and that therefore only a certain kind of relationship, which the objection styles "quantitative," can be validly symbolised by relationships between spatial magnitudes. Such objection to Euler's method ignores the qualitative co-efficient inextricable from, because co-functional with, any possible determination of quantity. As for spatial quantity, it can by no possibility elude its qualitative determination, of bearing, or direction; the circumscribing of an area within a plane represents the qualitative individuality and interrelatedness

of a meaning by the indefeasible bearings of this segment of the plane, and exhibits perfectly the inverseness of magnitude between locus and character by the increase of directional specification which diminution of spatial magnitude within a posited (*i.e.*, circumscribed) area involves. The quantitative calculus from such areas is irrelevant to any measurement. Their sizes, that is, are irrelevant to any relations that enter into the symbolism, with the precisely valid exception of the inequality which enters into the definition of inclusion, and is a function of the inverseness of magnitude between character and locus. And the periphery circumscribes or defines the infinite, since the spatial area is no more discrete than is the logical "extension" which it represents.

Reference to the tabular analysis, below, of the concept "Logical Mediation" shows that if a single such area be given more than a single designation, it validly represents the surdity of absolute identity, or sameness, as a mediation between meanings. It exhibits the nullity of mediation where there is no distinctness. And such a figure nullifies distinctness in the aspect of quality by the same stroke as in that of quantity. Or dichotomise the area, and designate each part distinctively. Such a figure validly represents the surdity of absolute dichotomy, or independence by absolute disjunction. For such dichotomy presupposes the contradiction of circumscribing the whole. And the two figures together exhibit the polarity between the two surds: identification of S and P is dichotomy into S and Non-P; dichotomy into S and P is identification of S and Non-P.

All types of mediation are variables; *i.e.*, limits of variation are essential determinants in their respective definitions. Inclusion (*i.e.* implication) and externality (*i.e.*, incompatibility) have no *qualia* save their respective limits of quantity, that are not essential to intersection (*i.e.*, mutually independent co-subsistence); which latter, therefore, but for this point of distinction, would be a species at once of inclusion and of externality. It is generically distinct from inclusion in that, in the latter, community exhausts a term, or one term is constant; while, in intersection, the quantity of neither term is exhausted, or neither is constant. Now, the only elementary *qualia* of inclusion *beside* its limit of quantification, are community between S's and P's and exclusion of a variable ratio of one locus by the other constantly. But both these *qualia* are essential to intersection as well. On the other hand, intersection is generically distinct from externality in that, in the latter, exclusion exhausts both terms, or both are constant; while, in intersection,

the quantity of each term is variable. Now again, the only elementary *qualia* of externality *beside* its distinguishing limit of quantification, are exclusion of a variable ratio of each locus by the other constantly, both of which *qualia* are essential to intersection as well.

Thus analysis of all varieties of adequately concrete, or determinate mediation of locus with locus and character with character into their elementary *qualia* results in two ultimately abstract or generic simples of mediation, those relations to whose propositional formulation the logic of the schools has attached the symbols "I" (the relation of community, *i.e.*, co-subsistence) and "O" (the relation of exclusion of a variable by a constant, *i.e.*, independence of a character with respect to another character); and the determinant of quantitative limit. The latter added to the generic *quale* of community differentiates within the genus that species of community to which the symbol "A" has been attached, the relation of inclusion (*i.e.*, implication); added to the generic *quale* of exclusion, the determinant of limit differentiates within the genus that species of exclusion to which the symbol "E" has been attached, the relation of externality (*i.e.*, incompatibility).

Community, a type of mediation which, because abstractly generic, is not adequately determinate, comprises as species under it, or characterises with its *quale*, the three adequately determinate varieties of mediation: (1) Inclusion (of posited sense, say of S's by P's); (2) Inclusion (of converse sense, *i.e.*, of P's by S's); (3) Intersection. The genus exclusion comprises under it, or characterises with its *quale*, the three varieties of adequately determinate mediation: (1) Inclusion (of sense determined by the quantitative limit in exclusion; say, inclusion of P's by S's); (2) Intersection; (3) Externality. Although inclusion of posited sense, and externality, are adequately determinate varieties of mediation, inasmuch as no other type of genuine mediation is characterised by the distinguishing *quale* of either, yet each is at the same time a generic or elementary constituent of a formal series which includes one term differentiated in a determinate way from the rest of the series. For the *limit* of each of these two types of concrete mediation, at one end of its series (identity in the case of inclusion, dichotomy in the case of externality), specifies within the series a member which, though surd, is a limiting *case*, and so a *member*, of the series.

ANALYSIS OF THE GENUS TYPES OF LOGICAL MEDIATION.

	Designation of Adequately Determinate Mediation in terms of			Denotative Representation.	Analysis into Abstract Constituent Characters. Relational: in terms of				Limitative: Constancy of
	Locus.		*Character.*		*Locus.*		*Character.*		
A	Identity	(Limiting surd)	Sameness	S P		1 2			S, P, Non-S and Non-P
I	Posited Inclusion	1	Posited Implication	(S) P	Community Converted Exclusion	I (O)	Co-subsistence Converted Independence		S and Non-P
I	Converted Inclusion	2	Converted Implication	S (P)	Community Posited Exclusion	I O	Co-subsistence Posited Independence		P and Non-S
I	Intersection	3	Mutually Independent Co-subsistence	S P	Community Posited Exclusion Converted Exclusion	I O (O)	Co-subsistence Posited Independence Converted Independence		O
E	Externality	4	Incompatibility	S P	Posited Exclusion Converted Exclusion	O (O)	Posited Independence Converted Independence		S and P
E	Dichotomy	(Limiting surd)	Disjunction	S P		4			S, P, Non-S and Non-P

It remains only to emphasise that the result of such analysis is to validate the subsumption, under these four generic types of relatedness, of any possible relation whatever, since these genera are the irreducible elements of mediation between loci and between characters, and experience expresses itself exhaustively in terms of locus, and at the same time in terms of character; that is to say, in terms of being and in terms of essence. To no phase or aspect of experience whatever can the elements of mediation fail to be relevant and determinant; no detail of experience whatever could possibly elude their determination, since experience is essentially significant. Analysis of the given relational combination of concrete experience is the sole business and interest of the formal logician; who therefore, in his research into the modes and conditions of this phenomenon—that is to say, in developing syllogistic theory—has no legitimate regard for any patented method of investigation which this school or that, of epistemology, or of metaphysics, or of psychology, or of grammar, or of medicine, or of any other creature, may hold in esteem as the canonical organ of knowledge.

V.—DISCUSSIONS.

MR. RUSSELL'S *LOWELL LECTURES*.

In this paper I propose to consider a few of the criticisms of Mr. Russell's *Lowell Lectures* brought forward by Prof. Saunders in the issue of Mind for January, 1917. Prof. Saunders attempts to show that on purely general grounds Mr. Russell's results in this book are of little or no philosophical value. It will be my object to prove that Prof. Saunders has not been successful in his attempt.

It appears to be a fact that, on reflexion, it is much more difficult to doubt some kinds of propositions than others, and to doubt the existence of some kinds of things than others. Thus it seems to be more difficult to doubt the existence of our own sense-data than to doubt the existence of other people's sense-data or the existence of unperceived sensibilia.[1] Again on reflexion, the existence of sense-data experienced by us in the immediate past seems less open to question than the existence of points and instants and physical objects which are never given in experience. Then it seems to be much more difficult to doubt propositions asserting that certain spatial or temporal relations hold between sense-data than to doubt propositions about other people's minds and mental states. Further the very hardest propositions to doubt seem to be the Laws of Logic.[2] Thus there is an obvious sense in which the collection of data that Mr. Russell has specified can be called "hard" data—"data which resist the solvent influence of critical reflexion," and they can quite properly, I think, be called comparatively certain. It seems too, as far as one person can judge, that our own sense-data and the Laws of Logic are the hardest of these hard data and that it is a fact that "the more we reflect upon these, the more we realise exactly what they are, and exactly what a doubt concerning them really means, the more luminously certain do

[1] Mr. Russell uses the name *sensibilia* for those objects which have the same metaphysical and physical status as sense-data, but which are not necessarily data to any mind. See *Scientia*, July, 1914.

[2] Mr. Russell did not, of course, give a list of the Laws of Logic in his *Lowell Lectures* but a good idea of the nature of one important sub-class of them is given in *Principia Mathematica*, Cambridge, 1910. *Cf.* Prof. Saunders' article, p. 47.

they become ".[1] There is therefore a fairly well-defined body of data which appear to have a comparatively high degree of certainty. In view of the fact that the distinction between "hard" and "soft" data is one of degree it would be impossible to give a precise criterion of whether or not a certain datum is "hard". In his criticism of Mr. Russell's premisses Prof. Saunders has not, I think, adduced any important considerations which cast any doubts on the hardness of the data in question: but just as one can only put forward arguments of a psychological nature in support of Mr. Russell's position on this point, so one can only use the same kind of weapons against it.

After this preliminary discussion of the premisses of Mr. Russell's system we will leave the question of the truth of his assumptions and pass on to a consideration of the development of his system.

Now it must be evident that in general, it is possible to infer from a given set of premisses which includes a principle of deduction, other propositions not contained in this set.[2] In the system we are discussing, the Laws of Logic are included in the premisses and yet Prof. Saunders takes exception to the fact that other propositions are asserted, apparently merely because they are different from the premisses.[3] He asserts that if certain premisses are the only certain facts then nothing else is certain. He, in fact, objects that if sense-data alone are certain in this system (and Mr. Russell has explicitly said that he is going to assume the Laws of Logic to be certain, having given his reasons for considering such an assumption justified) then nothing else is certain. This, of course, is quite true: but Mr. Russell never asserts of any body of facts or propositions that they *alone* are certain. Rather, he suggests that such and such a body be taken as certain. Since the Laws of Logic are included in this body, all logical deductions from the premisses can be justifiably asserted in his system. This class of propositions will, I think, cover all Mr. Russell's statements "constituting his position as such, statements about it, and statements about other philosophies ".[4]

[1] It will be noticed that Mr. Russell does not lay himself open to the charge which Prof. Saunders has brought against him, *viz.*, of saying that reflexion upon these hard data makes us realise exactly what they are: the last clause alone follows from the previous ones.

[2] *Cf. Principia Mathematica* in which three volumes of propositions are inferred from a very small number of primitive propositions.

[3] *Cf.* Prof. Saunders' article, p. 49.

[4] As I have explained above, Prof. Saunders points out that if only sense-data are certain then nothing else is and seems discomfited with his statement in view of the fact that it itself claims to be certain. This seeming paradox belongs to a type well recognised in modern logic and could, I think, be explained by a judicious application of the doctrine of types to the case in point. *Vide Principia Mathematica*, Introduction, chap. ii.

Having assumed the certainty of this body of data, Mr. Russell attacks an important and interesting problem in physics. Physics consists of a body of propositions expressed in terms of objects not given in experience, such as physical objects and points of space and time. Mr. Russell's thesis is that *in so far as physics is verifiable*, it is possible to give an interpretation of the propositions of physics in terms of objects given in experience. But since no principle by which unexperienced entities can be inferred from experienced ones commends itself as valid, Mr. Russell's only plan is to exhibit these objects as logical constructions of objects given in experience. The propositions in question cannot, I think, be called "impure" propositions in Prof. Saunders' sense; the objects in terms of which they are expressed are merely such as we do not, in fact, experience in sense. In order to give an interpretation of the propositions of physics in terms of objects given in experience we shall substitute certain collections of immediately given objects for objects not given in experience. Further, in order to show that our interpretation is a possible one, it will be necessary to prove that such collections have certain properties. The "relatedness of certain things in certain ways" can then be said to involve "their having certain properties". But by this we do not mean that the things in question are such that we at once recognise that they have these properties: neither do we mean that they "are apprehended to have them on the assumption of their identity to other things known to have them".[1] We merely mean that by a logical process it can be shown that they in fact have the properties in question. It may make this point clear if we consider the question of the construction of points.[2] We use in their construction sensibilia and the relation of enclosure between two sensibilia—the relation of enclosure by Mr. Russell's premisses is given in experience.[1] A relation called a point-producer is defined in terms of this relation of enclosure: it has to be transitive and to have various other properties. Then a special kind

[1] *Cf.* Prof. Saunders' article, p. 32.

[2] *Cf.* p. 115 of the *Lowell Lectures*. But here another interesting point arises. Physics seems to assume that the space with which it deals is continuous. Now it is impossible, in experience, to verify this assumption—and there appears to be no sort or kind of reason for holding that physical space is, in fact, not discrete. But it is not difficult so to supplement the sense-data given in experience by the assumption of unperceived sensibilia, that a continuous space can be constructed out of them: and the assumption of the existence of these interpolated sensibilia is not contrary to any facts of experience. But we *could* construct a discrete space out of the sense-data given in experience and this is the important point for Mr. Russell's thesis that *in so far as physics is verifiable*, it is possible to give an interpretation of the propositions of physics in terms of objects given in experience. But the point I wish to make with respect to *how* the properties of these logical constructions are established is unaffected by the fact that in this particular construction that I am using as an illustration, certain sensibilia are interpolated.

of series called a punctual enclosure-series is defined: any set of objects is an enclosure-series of any two of them one has to the other a relation of enclosure: further under a certain condition a series is called a "punctual enclosure-series". Then a "point" is all the objects which enclose members of a given punctual enclosure-series. It should now be evident that one could hardly pretend to an immediate knowledge of the properties of points so constructed. It is not at all obvious that they do, in fact, have the properties which geometry requires of them. But it is easy to see that it is possible to work out their properties by means of logical processes. The precisely analogous work of discovering the properties of logically constructed numbers and showing that they are such as are required in arithmetic is exhibited in some detail in *Principia Mathematica*.[1] Moreover, these numbers and points are not "reasoned" to have certain properties on the assumption of their identity to other things known to have them: we do not assume that there are such things as points and then call in our crude geometrical intuitions to help us, first because our constructed points are of such a complicated structure that the intuition is powerless before them; and secondly, because the essence of this method is not to assume the existence of these objects. Thus these points are not known to have certain properties except by a process of logical deduction nor are they reasoned to have them on the assumption of their identity to other things known to have them, as Prof. Saunders suggests.

Further as Prof. Saunders points out, of course constructed entities are not facts in the sense in which we speak of sense-data as "facts" of sense: but, it is this very characteristic of constructions that makes the theory we are discussing, better than those hitherto formulated. Before, it had been thought that it was necessary to assume the existence of physical objects and other objects not given in experience in order to find a possible interpretation of the propositions of physics. Mr. Russell has shown that an interpretation which does not involve their existence is possible. And in pointing out that Mr. Russell's interpretation has this merit, I meet Prof. Saunders' demand on page 32 for "some important sense" in which Mr. Russell's hypotheses are "better than those hitherto formulated". I will now try to show why an interpretation not involving physical objects is, in an important sense, better than an interpretation which involves physical objects.

Let us take a very simple case and consider possible interpretations. Physics gives the proposition "this physical object is to the right of that one". A rough interpretation can be offered as follows: There are two sense-data which are aspects of this physical object and that one respectively, and there is a certain relation between them. But Mr. Russell has shown that it is possible to connect the sense-data usually called "aspects of the

[1] *Vide* vol. ii., section A.

same thing" by means of continuity and certain causal laws without assuming there is one thing of which they are all aspects. Thus a second interpretation can be given: There are two sense-data which are 'aspects of the same things' as certain other sense-data and there is a certain relation between them. This interpretation does not involve the existence of physical objects. Now it is evident if the first proposition is true, so is the second: but that if the second is true, the first may or may not be true. Thus we have two propositions q and r (say) such that q implies r and r does not imply q.

Then [1] I would maintain that, under these circumstances, one can properly say that r is more probably true than q. Therefore the second interpretation is, in an important sense, better than an .interpretation involving the existence of physical objects. Thus for Prof. Saunders' statement I., I would substitute the following proposition: An interpretation of the propositions of physics not involving the existence of physical objects, etc., is more probably true than an interpretation assuming the existence of these objects. Then in answer to Prof. Saunders' objection α, I would maintain that from the premisses it follows that the logical constructions in question involve as constitutive entities and relations only sense-data and such relations as are given in experience and that therefore they are real and abstract in his terminology: and further that in point of fact Mr. Russell has given an interpretation of certain propositions in terms of logical constructions of hard data and has indicated general methods by which it seems possible to do it in other cases. In answer to β I would say that the interpretation we have discussed is in a perfectly definite sense more probably true than others given and as explained above preferable to those hitherto formulated.

[1] Cf. Mr. Russell's *Problems of Philosophy*, p. 125.

D. M. WRINCH.

ON RELEVANCE.

A FRESH logical point is incidentally suggested by a recent discussion in MIND: namely what should be meant by 'irrelevance' in a discussion? In No. 100, page 518, I had accused Dr. Mercier of irrelevance, and he now (in No. 103, pp. 342-347) seems more concerned to rebut the charge than to inquire seriously whether perhaps there is something in it. This probably points to a difference in our conception of the nature of the fault itself. While I conceive it as, in general, an extremely common and excusable kind of mistake, he apparently conceives it as at best an easily avoided blunder. Intentional irrelevance is of course not here in question; for that I should have no excuses to make. The examples noticed in No. 100 were all of the most innocent and natural kind, the kind which forms the substance of almost every philosophical dispute, just because in philosophy there is so little room for dispute about matters of fact.

The examples referred to are fairly typical, and we can now revise them in the further light of the defence put forward by Dr. Mercier. I objected that certain remarks of his are irrelevant to certain questions, and his answer is in effect that they are relevant to others. For no question was raised between us about the general connexion between clear thought and elegant language, nor about the disrespect due to unintelligible statements. The question was about a particular case of clumsy expression which Dr. Mercier admittedly (p. 343) does *not* accuse of being unintelligible. Granting then that literary or grammatical criticism is also logical criticism when it complains of a lack of meaning, what has that to do with the verbal monstrosity of the particular sentence in question?[1] Since its meaning is clear, the verbal criticisms are literary as *contrasted* with logical. But they are also irrelevant in another way. We must remember that Mr. Shelton had not a free hand in choosing the form. He had undertaken to show how an implied premiss might be forced into a

[1] We may notice that there was also some further irrelevance in connecting Jevons's name with this matter at all. His responsibility, Dr. Mercier now declares (p. 347), has nothing to do with the essence of Mr. Shelton's operation—the taking of two 'propositions' as one premiss and concocting the other—but only with the form adopted for translating 'hypotheticals' into 'categoricals'. As a fact, however, Jevons was not responsible even for this. The same form was used for the same purpose, some fifty years before, by Whately (*Logic*, Bk. iv, § 6); and the real originator of it may have been earlier still.

certain traditional mould. He proceeds to do so, and the result is inelegant, as every one agrees and as those who know the literary defects of Formal Logic might have expected. But the inelegance, we claim, does not affect Mr. Shelton's success in his undertaking; it is due to the limits of style to which he was *ex hypothesi* restricted. Dr. Mercier complains that Mr. Shelton, when *not* left free to choose a natural form for the implied premiss, makes use of one which is unnatural. If Dr. Mercier had undertaken to travel to Scotland in a cattle truck and had succeeded in doing so, and if I were to claim that because it was an uncomfortable mode of travelling he had failed in his undertaking, would Dr. Mercier think my objection relevant?

Again, since Mr. Shelton took a pair of so-called 'premisses' and regarded them as together forming a single premiss, it still seems to me that in order to be relevant any criticism must recognise that one of the questions he raised is whether they are really 'the premisses' or not; and that to beg this question would therefore be to ignore part of the point at issue. On the other hand Dr. Mercier has a clear right to explain that in calling them the premisses he is only following a custom he deplores; and, accepting this explanation, I see that my objection was groundless so far as he is concerned; this particular irrelevance, I willingly agree, is not to be laid to his charge. My objection itself was therefore irrelevant.

As regards the other two charges of irrelevance, Dr. Mercier seems to have somehow overlooked my explanation of them (No. 100, p. 519)—that, on account of certain specified ambiguities in the questions raised, no direct answer that can be given to them would be relevant to the difficulties they profess to deal with. These ambiguities are, I think, important, and I hope that in any future remarks Dr. Mercier cares to make on this subject he will either show their unimportance or take them into account.[1] What I meant was that, as against those opponents who see the ambiguity of the questions—and who hold that the use of a universal in reasoning is only required where (1) the argument is not merely verbal, and (2) the need of proof is felt—it is irrelevant to show that no universal is made use of in (1) merely verbal substitutions or (2) conclusions reached uncritically or assumed to be self-evident. In the case of the simple *a fortiori* argument from which the discussion started it is true that in daily life we never dream of doubting the conclusion, but the question as it arose was not about this sensible and careless procedure, but about the pro-

[1] A fresh example of his ignoring them occurs on page 346, where he misquotes me as actually using one of the ambiguous phrases—"we obtain this conclusion through" a universal. If he would re-read the passage (No. 100, pp. 520-521) he would see that I not only did not use this phrase, but explained my avoidance of it. And Mr. Shelton's comments, at page 358, show that my meaning was clear at least to him, though he thinks the limitation unnecessary.

cedure of any careful logic *if* we should happen to want to use it. What gives some value to this 'if' is the difficulty of drawing any clear line between conclusions which can and which cannot be usefully doubted. That may be some excuse for Euclid's thinking it worth while to set out his obvious and tiresome principles in verbal form.[1]

Dr. Mercier's remarks in No. 103 contain at least two fresh irrelevances. First, it is evident (p. 344) that he and I mean something different by a 'syllogism'. The definition I give to the word, as indicated in No. 100, at the top of page 520, is "the application of a general rule to a particular case". Now Dr. Mercier cannot mean that *this* process is "powerless to cope with facts asserted as true" or that it is "a small and insignificant part of the machinery of inference". What he apparently does mean—and what no one would dispute—is that when the application of a rule to a case is *used as a mere supposition*, then it is not concerned with facts asserted as true; and that this tentative use of it is only a small part of inference as a whole. If this is what he means, how does he suppose that his view conflicts with mine, and what is then the relevance of his protest? A question might be raised about the value of his proposed restriction of the meaning of the word 'syllogism,' and we might disagree about that. It seems to me better to recognise three different uses of a 'syllogism'—three different ways in which rules may be applied to cases: (1) where we assert a conclusion and support it either by asserting both the premisses or (more commonly) by asserting one and implying the other; (2) where we do not assert either the conclusion or the premisses, but merely speculate on the conclusion which, if true, the premisses would support; this, I suppose, is 'the syllogism' in Dr. Mercier's sense; and (3) where we accept (whether rightly or not) a rule and an application of it, and draw from these premisses a conclusion we had not thought of before. This last is the rarest and least important use of the syllogism, and no doubt Dr. Mercier agrees with me that it bulks too large in the traditional logic.

There seems to be a difference also between our views of the nature of reasoning from facts. Dr. Mercier's conception of this process would perhaps gain by his giving more importance to the method of analysis. Is it not true that, except in early stages of an inquiry, we always try to look behind the mere number and constancy of our experiences of the C-ness of B? We break up the crude facts into details to which we can give some meaning through our previous beliefs about special *causes and effects*. Each detail so regarded is the (supposed) application of a (rightly or wrongly) trusted rule. Criticism of the process, step by step, con-

[1] At page 347 Dr. Mercier seems to throw doubt upon the intended universality of the theorem proved in *Euclid*, Bk. i, Prop. 20, on the ground that 'a' triangle, not 'any' triangle is spoken of. Then how does he account for the consequences drawn from it in Euclid's next Proposition? This use of 'a' for 'any' is a common English practice, and the objection seems to me excessively formal.

sists in raising the questions (1) whether a given rule of causation is rightly trusted, and (2) whether a supposed application of it properly deserves to be called so. The chief use of this 'syllogistic' view of reasoning from facts is that it filters out for us these two separate questions; and the chief danger of it is that in separating them we are liable to overlook their necessary interdependence, and so to be content with an ambiguous middle.

Secondly, it is irrelevant to describe as a "plain issue" (p. 346) an issue which has already been found ambiguous. By calling it ambiguous I meant that Dr. Mercier's question, as he states it, admits of the meaningless double answer "yes and no," and that these answers can only be reduced to one by removing the ambiguity. In No. 100, page 519, my difficulties were stated, and there is therefore no need to repeat them here. As, however, Dr. Mercier now says that he has no objection to the use of a universal *if it is wanted*, all that remains is to repeat my question whether concocting a universal from a given minor premiss and conclusion is a process that is ever wanted; and if so for what purposes? The meaning of this question may be clearer now that some of the differences in our views of the syllogism have appeared. It seems to me that in reasoning from a fact to a conclusion the attempt to regard that fact (or some detail in it) as coming under a rule necessitates an attempt to state the rule so that its meaning shall be clear. The use of this attempt is that it is only in the form of a statement that the truth of the rule can be carefully criticised. A vaguely apprehended rule may deceive us, and in making it definite we are more likely to discover its faults. I have already (No. 100, p. 521) agreed that the rule implied in the *a fortiori* argument is an extreme case of a rule the expression of which is in daily life unlikely to be wanted. But in view of the difficulty of saying in general which rules on what occasions would gain the requisite definiteness by expression it seems to me better that logic should make provision even for extreme cases, and that we should then, in everyday practice, use our discretion as to calling in logic's aid. Thus I quite agree that to set out the implied major premiss of the *a fortiori* argument is an operation that no one would think worth while *except* when required to do so in the name of logical theory.

The examples here noticed of irrelevant arguing may help to show how many opportunities for it occur innocently in disputes about logical points. Sometimes irrelevance takes the form of proving against an opponent what the opponent freely admits; sometimes of ignoring a distinction on which his argument openly turns; sometimes of forgetting the conditions by which he has chosen to limit himself; sometimes of begging part of the question raised; or again of accusing him of begging a question when he has not done so; sometimes of ignoring an ambiguity which he has asked to have removed; sometimes of ignoring a definition—*i.e.*, a postulate about the meaning of a word. And what is common to all these (and other) varieties is that a meaning has been misin-

terpreted. Now a given misinterpretation may be anybody's fault —or nobody's. There is often no blame to be laid upon the person who commits it; and no blame was laid by me upon Dr. Mercier. No more blame need attach to irrelevance than to our failure to catch a remark in a noisy street. Misinterpretation of a statement, or an argument, is often only a natural result of excusable pre-occupation with some other point of view. Indeed there would almost be something uncanny about a philosopher who never did mistake his opponents' meaning.

ALFRED SIDGWICK.

FORMALISM AND THE *A FORTIORI*.

Mr. Pickard-Cambridge concludes his interesting Discussion on 'Universals and *A Fortiori* Reasoning' in No. 102 with a doubt whether there exists between him, Dr. Mercier and me a "common basis of an agreed use of words," and whether we are using "terms like 'universal,' 'actual,' 'true,' etc., in the same sense at all". There is, I think, some truth in this complaint, though its purport might perhaps have been formulated more precisely as a doubt whether Mr. Pickard-Cambridge has grasped the bearing of *purpose* on *meaning* and has recognised the ambiguity of the notions of 'truth' and 'validity'. I cannot speak for Dr. Mercier, but I have not myself any difficulty in apprehending Mr. Pickard-Cambridge's position and cordially sympathising with its embarrassments. Moreover, to raise this question of the meaning of terms is assuredly the beginning of wisdom in discussion, as Socrates perceived; but it should be raised at the outset, and not at the end, of the discussion. Especially where the discussion arises out of an attack on a traditional dogma. For while the attack is likely to take the form of suggesting that the terms of the doctrine are inadequate, ambiguous and in need of further distinctions, the defence is very apt to make a minimum of apparent concession to cure the most patent inadequacies, without much regard to consistency and the logical consequences, and then insensibly to slip back into the old terminology.

This is in general what happens in attacks on Formal Logic. The logical integrity of its line of defence has been broken in many places, and makeshift shelters have been improvised for its fugitive garrison on any ground that seemed available. But whether that ground is really defensible has still to be tested.

1. To take first the reference in logic to the purpose of the argument. Here the contentions of the attack are that a purpose always exists, that a knowledge of it is necessary to determine the meaning of every term in every assertion, that every real logic must take it into account, and that it is entirely fatal to any logic which retains any trace of Formalism. These points are so well taken that overt resistance is no longer possible. It is admitted, therefore, in a general way that thought is purposive, and Mr. Pickard-Cambridge also does not deny this. However, he hardly seems to have understood how much is involved. His comments on my use of the notion of the argument's purpose render this quite clear. I had argued against the 'universal validity' of the form $A > B$,

$B > C$, $\therefore A \dot{>} C$, that the differences in magnitude might be quite irrelevant for the purpose in hand, so that the notion of 'equal' might describe the actual situation better than that of 'greater'. This common-sense remark Mr. Pickard-Cambridge treats as a mystery intelligible only to pragmatists; it is to him "simple nonsense—a contradiction in terms". For "if A is even microscopically greater than B, I cannot see how 'for the purpose in hand,' or for any other purpose, it is appropriate to call the proposition [1] that it is equal to B a 'truer' one. I should have thought the proper way to characterise such an assertion would be that it is a falsehood whose falsity, however, for the purpose in hand, does not matter" (p. 215).

This criticism shows how unable Mr. Pickard-Cambridge is to get away from the notion that there is one fixed truth *per se* which inheres in the nature of the object it is 'about' and is independent of and unaffected by what any knower wants it for. It has not yet occurred to him that particular objects, and so all the truths about them, are products of our selection. But, of course, it follows that *if* this notion is 'valid,' no reference whatever to a 'purpose' is admissible. The 'purpose' must then *always* be irrelevant to the 'truth'. Nor can we compromise the situation by allowing the knower to have a purpose *in petto*, provided that he is thoroughly ashamed of this *partie honteuse* of his thought, and consents to its never being mentioned in public by a pure logic.

If, on the other hand, we draw the logical consequences from the existence of purposes, and allow ourselves to contemplate the process of adjusting the meanings of words to the meaning we wish to convey and to the purpose with which the words are used, is it not equally clear that it is neither nonsense, nor even a paradox, to treat as 'equal' things between which only irrelevant differences of magnitude exist? Let us take a homely example, containing, I trust, nothing mysterious in Mr. Pickard-Cambridge's eyes. Suppose an object, say his hat, has fallen into a pond, but so that he may hope to reach it with a stick. He cries out, 'Give me a stick, the longest you have,' and I, fortunately, have three available, all approximately equal. Should I reasonably go off thereupon to examine them under a microscope in order to determine which was 'really' the longest? Would not every one—except a formal logician in acute controversial embarrassment—agree that the sticks were 'practically equal'? Nay, common sense will often say, 'equal to all intents and purposes'. This, of course, is going too far. The phrase is not exact. For the sticks are *not* equal for *one* purpose—that of micrometrical measurement. But to make much of this would appear to common sense a quibble and a piece of pedantry.

It would hardly be more favourably impressed by the objection (which I foresee) that though it might be '*better*' to call the sticks

[1] Note how naively the Formalism comes out here. Mr. Pickard-Cambridge is clearly not thinking of actual judgments and purposes but of 'propositions' and possible purposes.

'equal' for the purpose in hand, it was not '*truer*'. And I at least could not be denied the right of equating these terms (in the context), seeing that I have defined truth formally as 'logical value'.

Lastly, I would point out that in this matter Mr. Pickard-Cambridge is notoriously divided against himself. Owing to the existence of a psychical *limen*, his senses all refuse to infer from 'A = B, B = C' that '∴ A = C': *i.e.*, they treat as non-existent differences which are *practically negligible*, while they are yet sharp enough to recognise them when such differences accumulate, and 'make a difference'. Thus they are all thorough pragmatists, and they refuse (on principle) to recognise the ideal of equality his intellect demands. Hence his judgments that two things are 'equal' are, in strictness, always false. And, as Plato knew, the whole sensible world conspires with the senses against a reason that is unreasonable enough to demand 'absolute' equality. No two things can be found in nature that are absolutely 'equal' and 'identical'.

Similar considerations dispose of Mr. Pickard-Cambridge's other illustrations. In dealing with millions differences of the order of sixpence disappear. For 'practically every' purpose. *Not* for that of exact arithmetical computation. But who has ever denied this? Certainly not I, whom Mr. Pickard-Cambridge himself represents (p. 214) as contending only that differences in the purpose of the argument *may* (not must!) affect its 'validity'. But why should arithmetical exactitude be regarded as the only valid scientific purpose? Mathematical truths are all on a very high level of abstraction and never take account of the concrete detail of any scientific situation. Consequently they do not apply to all things, nor to any things in *all* respects. And even where they do apply, they do not apply *exactly*—as mathematicians are perfectly aware. It is mere confusion of thought in philosophers when they appeal to *pure* mathematics to guarantee the 'validity' of assertions in *applied*, and talk as if ideal creations like lines, circles, and triangles were common objects by the seashore. There ought to be a close time for mathematical illustrations in logic for the next ten years or so, in order that the traditional philosophy might have a little time to work out something like a theory of the connexion between pure mathematics and applied, and to discover the real nature of scientific procedure.

2. Mr. Pickard-Cambridge's remark that my criticism amounts to a proposal "to reject the idea of formal validity or invalidity altogether" I can cordially accept. This was indeed my contention (No. 100, p. 514). It is, I admit, a large order, but it is necessary, if we are ever to get clear about knowledge. I have argued the point fully in my *Formal Logic*, and there has been no reply. Moreover, the *a fortiori* arguments are peculiarly adapted to bring this out. To a *strict* Formalism they are all 'invalid'. So soon as the formalism is relaxed a little, the 'forms' openly display the weirdest variations in the matter of 'validity,' which seem to depend on the 'material' circumstances of the case considered.

The sciences are familiar with such cases. They have learnt that hard cases make better 'laws,' and devised profitable means have of coping with them: surely it is not unfair that they should require of logicians some little attention, both to their problems and to their methods. Consider *e.g.*, a case like the discovery of 'isotopes,' as a scientific commentary on the logical assumption that *A is A* universally and eternally. It is fuller of real logical meaning than many bulky tomes on 'logic'. A little while ago 'lead' was as good a 'universal' as could be found in nature. It had well-marked and well-explored 'properties,' a fixed 'atomic weight,' determined with great accuracy, at 207·2, and was considered to be always and everywhere itself, just 'lead'. Logicians regarded the scientific account of all this as a beautiful example of an 'eternal' truth, conformable with the 'law of identity'. *Now* what was 'lead' for all purposes is so no longer. Chemically pure and spectroscopically indistinguishable 'lead' may have any atomic weight between 206 and 210, and even if the atomic weight of two specimens does not differ, they need not be the same. The physicist, before deciding what to call them, *i.e.*, what 'universal' to use upon them, will want to know where they came from, and what was their past career. *I.e.*, the *history* of 'lead' has become scientifically relevant, and its 'eternal' identity a methodological fiction.[1]

The irresistible inference alike from logical criticism and from scientific experience, is that 'formal validity,' is an illusion. I submit, therefore, that the difficulties both Mr. Pickard-Cambridge and Dr. Mercier get into are a capital illustration of the need for the most radical reform, and that on Mr. Pickard-Cambridge's own showing, the case against 'validity' is made out.

(*a*) He admits me to have shown that in certain cases arguments in the form, *A is next to B, B to C, ∴ A to C*, will be valid, while in others it is 'invalid'. But he "cannot accept the conclusion that we have here one and the same 'form' of argument yielding sometimes a valid, sometimes an invalid conclusion. The additions or qualifications I have italicised alter the form of the argument. We have not one form but three. The first modification gives a form of argument universally valid, the second gives one universally invalid" (p. 214).

In other words Mr. Pickard-Cambridge's way of defending an attacked 'form' is to *split* it, and to allege that some of the products of this drastic operation are sound, while others may go to the—enemy. His method is the same as Mr. Joseph's when he defends the Syllogism against the charge of being either a *petitio* or a tautology by finding it guilty in two cases and acquitting it in one, while admitting that the form of the words does not enable one to distinguish which is which. But Mr. Pickard-Cambridge gives no reason why he should have only three cases to deal with, *viz.*, the original form which is 'invalid' because it is 'ambiguous,' and the forms which are universally 'valid' and 'invalid'. If 'forms' may

[1] See Prof. F. Soddy in *Nature*, No. 2491.

be multiplied at will by reason of the necessities of a logical theory in distress, where is the process to stop? How can it stop short of 'forms' so individual that they are the form of nothing except the particular case in which they were found? But would not this be a *reductio ad absurdum* of the distinction of 'universal' and 'particular'? And yet how can it be known *a priori* that the splitting of a form for the crime of ambiguity may not have to be repeated *ad infinitum?* Or that there will never crop up 'forms' which are, or appear to be, sometimes valid and sometimes not? Certainly there was nothing in the aspect of the original form that portended any such scission. It came into the discussion to challenge Dr. Mercier as a good, honest and respectable form of *a fortiori* reasoning which had about it no pretence of validity (No. 93, p. 78). It developed its present duplicity and multiplicity under the discriminating gaze of Mr. Shelton and myself (No. 96, p. 528, No. 100, p. 515), very much like a star which is single to the naked eye, but double to the telescope and quadruple to the spectroscope. Surely it is useless to divide reasonings into the 'valid' and the 'invalid,' if you have simultaneously to admit that you cannot call any reasoning 'invalid' until it has proved to be bad, and can never call it 'valid' at all, because it may always succumb to a latent but as yet undetected ambiguity?

(*b*) I would suggest therefore that it is simpler and better to conceive the problem as one of adding specifications to a general formula, in order to apply it to an actual case. This has always to be done in actual reasoning, and forms a problem logic should consider in principle and in its generality. Whenever we try to use any 'form,' whether it is called 'valid' or 'invalid,' 'deductive' or 'inductive,' syllogistic or non-syllogistic, we encounter the same difficulty. The (hypothetical) 'case,' being a selection from a larger whole, always contains *more* than the 'universal' or 'form' or 'law' we seek to apply to it. It may always turn out not to be a case in point at all, or to be so special a case that the conclusion which we want to draw, and could draw on other occasions, will *in this case* fail. As these possibilities occur whenever we pass from any abstract form of words to its application to an actual case, the problem has complete generality, and must be solved as such. It is indeed, as I pointed out (No. 100, p. 514), the problem of assigning values to the variables in a propositional function, in Mr. Russell's terminology.

Now Mr. Pickard-Cambridge's solution has not such generality, but, instead, a singular air of paradox. It merely argues *ex post facto* that the differences in the value of the form, seen after the specification of the cases, prove that the form was really multiple. Of these forms some were good, others bad. No doubt we knew not which was which; but have we not found out? And is not this enough?

No, I should reply, certainly not. It may be enough for Formal Logic, because it is all Formal Logic can achieve, but it is *not*

enough for Science and for the study of actual knowing. For them it is not enough merely to pass an otiose *ex post facto* judgment on the 'validity' of the reasoning, and to leave untouched the questions of how the form is, and should be, used, and what results may be expected therefrom. There is no guidance of actual inquiry. When we selected the form from the possible interpretations that occurred to us we knew of course that it had to be applied to the special circumstances of the case, and wanted to know what specifications would be needed. But the analysis of Formal Logic, having no ambition beyond applauding success and deriding failure, could not help us. We had therefore to *risk* our specifications, and of course the consequences taught us whether we did right or wrong. But the logical merit of the operation did not lie in the form, but wholly in the selection of a proper case for its application. And this vital process is treated as devoid of interest for logic!

(*c*) Surely, to get out of this impotent *impasse*, it is worth while to conceive the problem in its full generality and integrity. How does a 'form' ever receive the specifications it needs to become applicable to a case? By what means can it be rendered so 'fool-proof' that it cannot be misapplied and yield 'false' results? Are the means used ever formal? If we face these questions, we shall readily convince ourselves that Formalism fails utterly and beyond hope of redemption. No 'form' and no formula, from the syllogism downwards, can be rendered absolutely fool-proof. All may be misapplied. The best grounded calculations may be defeated by the novelty of the case. Hence a particular case may always crop up in which the formula breaks down and yields a false conclusion of which the falsity could not have been predicted, seeing that the conclusion was to all appearance a 'valid inference' from 'true' (*i.e.*, undisputed) premisses.

This breakdown, to which 'valid' forms are liable, may be variously described. It may be ascribed to a 'fallacy of accident,' or to an 'ambiguity in the middle term'. But both these descriptions are *ex post facto*. Before the event the mischief was invisible, and to catalogue is not to cure it, and still less to guard against it. As Mr. Alfred Sidgwick has so admirably shown in the case of the Syllogism, and Aristotle in that of contradictory opposition,[1] the defect (as it must be called from a formalist standpoint) is *inherent in the use of the form as such*. It is not apparent in the words of the form. It does not corrupt the pure 'universal' in its unapplied *otium cum dignitate*. But it may break out so soon as the form is used, and renders it worthless as a guarantee of (real, *i.e.*, 'material') truth. Logic, therefore, must renounce the idea that 'validity' is identical with 'truth,' or even allied to it. If so, is not the whole undertaking of Formal Logic, to determine the value of thought by examining its 'validity,' condemned to futility and failure? Formal Logic has made no reply to this

[1] *Cf.* my article in No. 89 (pp. 6, 14).

indictment. For over twenty years it has pursued Brer Rabbit's cautious policy. This (with the traditions of the examination-system) has no doubt protracted its existence. But should there arise a serious demand for an appreciation of scientific method will it not deservedly go under?

3. It would seem to follow that the belief in the existence of universally valid forms of *a fortiori* argument, which Mr. Pickard-Cambridge clings to in spite of the overwhelming evidence against them, is nothing but a superstition. An analysis of the general problem shows that there are *no* 'universally valid' forms. It is therefore perfectly easy to confront such claimants with cases which make their claims look ridiculous. And as Mr. Pickard-Cambridge still arrays them against Dr. Mercier, it may even be a duty to expose them. He argues, *e.g.* (p. 206), that if Peter is taller than John and John than Nathaniel, he can with certainty infer that Peter is taller than Nathaniel. But surely the answer (already given by Plato) is 'that depends on whether Nathaniel and John are growing lads, and on *when* the premisses were acquired'. Again, he argues that a ferret exterminates rats quicker than a terrier, a mongoose than a ferret, and ∴ a mongoose than a terrier. But it would be very unsafe to infer from this that a *particular* terrier was inferior as a killer of rats to a *particular* mongoose, or that 'any' terrier could not do better than any mongoose on a cold day.

The truth is that 'a' does not, in such propositions, mean 'any' or 'all'. It means 'the average'. The proposition is 'general,' but *not* 'universal,' nor can we make it universally true by grandiloquence about universals. For *latet dolus in generalibus*. And the risk we take in taking it as universal is precisely the risk of real reasoning, which is always experimental. We can endeavour to minimise this risk by making our terms very abstract, and arguing not about actual cases with their pitfalls and infinite complications, but about A's and B's, X's and Z's. This is why logicians are so fond of mathematical illustrations. But even here the risk remains, though it is rendered more remote. For the only way in which abstract symbols can defeat our calculations is by having their meanings changed systematically. And this does not happen to them often. Still it does happen, and the results are then just as unpredictable as when a novelty turns up in nature and upsets an ancient 'law'. The absoluteness of geometrical truth was dissipated into 'hot air,' when non-Euclidean geometries were constructed, in a way poor Euclid could never have anticipated; neither could the inventors of the ω have foreseen the part it would play alike in theology and in the arithmetic of 'transfinite' numbers. The effect in retrospect of such innovations is of course to render the old terms 'ambiguous'. We can no longer talk, *e.g.*, about the properties of 'the triangle' without specifying whether it is a Euclidean or some non-Euclidean 'triangle' we mean. But this sort of 'ambiguity' is ineradicable, and can be rendered very

instructive. For it is simply another name for the infinite capacity of terms to change their meaning, or to have it changed for them by the progressive requirements of a science. To admit the existence of this ambiguity, therefore, as Mr. Pickard-Cambridge does (p. 214), is really to give away his case and to *deny* the existence of 'absolutely valid' forms. And if he allows himself to think about these matters, he will, I am sure, perceive this too. At any rate he will perceive that the simple but slap-dash division of 'forms' into the sheep and the goats, the 'universally valid' and the 'universally invalid,' is utterly inadequate to the facts of reasoning.

F. C. S. SCHILLER.

VI.—CRITICAL NOTICES.

Creative Intelligence; Essays in the Pragmatic Attitude. By John Dewey, Addison W. Moore, Harold Chapman Brown, George H. Mead, Boyd H. Bode, Henry Waldgrave Stuart, James Hayden Tufts, Horace M. Kallen. New York: Henry Holt & Co., 1917. Pp. iv, 467.

Among the institutions sure to be severely tested by the social convulsions which will follow on the Great War all the world over will certainly be the universities, and the conceptions of knowledge to which they are devoted. For all the world has had so much experience of the power of knowledge for good and evil that there will be a strong outcry for such a remodelling of academic institutions as will make them minister in the most direct way to social needs and to the knowledge which is power. In countries like America and Britain, where there had long been a sharp contrast between academic theory and national practice, and the natural bent of the national mind had always been impatient of the glorification of 'pure' science and of the knowledge which is 'contemplation' or traditional learning, to which the academic life naturally disposes those who lead it, this demand may easily become irresistible, and fatal to the whole traditional order. In particular the claim of philosophy to a place and function in higher education seems destined to a severe harrowing. For speaking generally no votaries of the academic life have taken up a more defiant and extreme attitude than the philosophers, alike in their addiction to 'useless' knowledge, in their devotion to tradition, and in their unwillingness even to conceive their subject as progressive. All over Europe before the War academic lecture-rooms only re-echoed, in all essentials and with minor or minimal variations, four great substantive voices of antiquity, two of them Greek, Plato and Aristotle, two of them German, Kant and Hegel, and philosophy, instead of advancing with the steady sureness of a science, rehearsed only the old problems and the old debates. Nor was the situation materially different in America. For though a few American philosophers had made a radically new departure and a signal advance, by perceiving the theoretic importance of the bearing of practice on theory, they had not succeeded in overthrowing academic inertia. In spite of James and Dewey the mass of academic opinion in

America still followed with conservative docility in the wake of Europe, and recognised her intellectual hegemony.

There is a prospect now that after the War this habit may be broken. The political and economic hegemony of the world will almost certainly move across the Atlantic, and in all that money and equipment can effect American Universities will be enormously superior to European. This material superiority may inspire their teachers with greater confidence in the characteristic ideas of American life, and so, academically also, America may not only declare her intellectual independence but take the lead in the intellectual reconstruction demanded by the unprecedented crisis of civilisation. If so, American philosophers will have a gigantic opportunity. While their European colleagues will be struggling desperately to avoid utter ruin and the sweeping away of the whole traditional learning as an antiquated luxury no longer permissible in nations toiling for a living, and will be rallying round the watchword *videant professores ne quid detrimenti capiat res academica, they* will be free to advocate as truly American and consonant with the demands of the situation the pragmatic method which alone has conceived knowledge as essentially practical and essentially progressive, and ensures scientific progress by condemning as pseudo-science any study that is content to stereotype itself.

The present volume of essays suggests that American philosophers will not be loth to seize their opportunity. It can hardly be said indeed that it rises to the full height of the occasion and views it broadly or deeply enough. It is unfortunately over-technical and too evidently written by professors for professors and particularly for American professors. It seems to have been conceived as a counterblast to *The New Realism*, and to have been planned, and largely written, before the War, when it may have been appropriate and needful to parley with professional colleagues after the fashion of this book. But nevertheless the preface shows that its authors had also higher aims. They wished to exhibit their common pragmatic "attitude in application to specific fields of inquiry" and as indicative of "a courageously inventive individual, the bearer of a creatively employed mind". And their title is surely excellent. It suggests indeed a much-needed systematic discussion of the notions of creation and novelty, which we do not find; but in philosophy, as in most things, novelties are so rare that they may well be hard to understand, and we ought to be grateful that philosophy at last consents to admit that they exist. It is only when the creators of new values are dead and can be lectured on, and their novelties have grown old and familiar, that they can be understood and appreciated.

Proceeding to the several contributions, we note that Prof. Dewey selects as his topic the possibility of *A Recovery of Philosophy* from the excessive conservatism which threatens to 'side-

track' it and its obsolete problems. He summarises the contrasts between the traditional accounts of experience and that required by the actual conditions of life, under five heads—(1) Experience is not a knowledge-affair, but an affair of living. (2) It is not 'subjective' and psychical but is intercourse with a genuinely objective world. (3) It is not confined to *ex post facto* registration of the past, but is an experimental effort concerned with the future. (4) It should not taboo connexions and continuities with the traditional 'empiricism,' which forced its unanalysed prejudices into its account of experience. (5) It is not antithetical to thought, but full of inference, and naturally reflective. For 'ideas,' 'reason,' and 'intelligence' all mean capacity to "anticipate the consequences of processes going on" (p. 21): "any reaction is a venture" involving risk (p. 22). So 'reason' is nothing extra-empirical, and to treat the world as already "fixedly and completely rational" is not only to make change unreal and error unaccountable, but is dangerous, because it ignores the actual efficacy of thought in avoiding error and changing the real for the better. "The problem of knowledge *überhaupt*" is stigmatised as no less foolish than "a problem of digestion in general" (p. 33). For empirically "knowledge is always a matter of the use that is made of experienced natural events" (p. 47), and "*the* real object or *the* world or *the* reality" does not exist (p. 50). Any change "is the change of *a* real object," and "it is not that knowing *produces* a change but that it *is* a change of the specific kind described". The traditional view is "a confusion of logic with physiological psychology,"[1] which "has bred hybrid epistemology with the amazing result that the technique of effective inquiry is rendered irrelevant to the theory of knowing, and those physical events involved in the occurrence of data for knowing are treated as if they constituted the act of knowing" (p. 52). Pragmatism on the contrary has not to develop a theory of Reality: "no theory of Reality in general is possible or needed". 'Reality' is "a blanket denotative term" which covers specific events, and "the retention by philosophy of the notion of a Reality feudally superior to the events of everyday occurrence is the chief source of the increasing isolation of philosophy from common sense and science" (p. 55). The essay concludes with some sagacious remarks on the reasons for the widespread failure of technical critics of pragmatism to understand the issues it raised, on the need of the age for "an adequate conception of the nature of intelligence and its place in action," and on the special duty of American philosophy to "bring to consciousness America's own implicit principle of successful action" (p. 67).

Prof. A. W. Moore's *Reformation of Logic* declares the present task of logical theory to be "the restoration of the continuity of the act and agent of knowing with other acts and agents" (p. 77). The tradition, whether called rationalism or empiricism, realism

[1] The text has 'physiology,' which must be a misprint.

or idealism, unanimously regards emphasis on the experimental function of thought as "an attempt to rob intelligence of its own unique and proper character" and to reduce it to a merely psychological affair of disreputable adventures. It is of course true that every experiment is an adventure, but "it is precisely the experimental character of scientific logic which distinguishes it from scholasticism medieval or modern" (p. 78). The traditional logic is an anachronistic science which "attempts to deal with its subject-matter apart from what it comes from and what comes from it" (p. 78). Logical and non-logical observation must be both distinguished and connected. The latter leads directly to conduct, the former constructs or verifies hypotheses which anticipate events experimentally, in order to remove an ambiguity or doubt. If this distinction is not observed, and the logical process is regarded as a mere repetition of the non-logical, inference becomes otiose and tautologous; while if the non-logical is set to perform logical operations, it becomes miraculous. It is futile to seek 'simplicity' in data and objectivity in 'facts': in scientific reasoning the 'simplicity' of the data is never absolute but relative to the problem under investigation, while the 'objectivity' of hypotheses is established by their success in doing their work of removing ambiguity and inhibition in conduct. It follows as a corollary that the truth and falsity of cognitive acts are similarly relative to their success. The 'intellectual satisfaction' derivable from such success is of course relative also. Finally the 'analytic' logic of 'neo-realism' is criticised as a deliberate attempt at "the exclusion of the act of knowing from logic" (p. 103). It has, however, accepted from the logics of the old rationalism, empiricism and idealism the fundamental assumption that the act of knowing is incurably 'subjective'. But how, with this separation of knowing from knowledge, is all osmosis between logic and psychology to be prevented? There is moreover nothing "to choose between hypotheses found ready made in the facts and those which are the 'winged' constructions of a purely psychical mind. Both are equally useless in logic and in science" (p. 109). Again the 'simples' of realism merely transmute logical data into ontological, while the attempt to get rid of the problem of truth and error by making error "a given objective opposition of forces entirely independent of any process of inquiry" merely leads to making "all objectivity erroneous" (pp. 111-112). The only way out of the wood for logic lies in taking the operations of intelligence as real acts strictly continuous with other acts (p. 116).

Prof. H. C. Brown's *Intelligence and Mathematics* undertakes the onerous task of bringing the philosophic interpretation of mathematics up to date. It contains an interesting sketch of the beginnings of mathematics and of the epoch-making advances of modern times, both of which may be commended to the notice of philosophers whose appreciation of mathematics still begins

with Plato and ends with Euclid. After a critical discussion of Mr. Bertrand Russell's theories and after propounding a theory of relation of his own, Prof. Brown concludes that the processes of mathematics "are in no way different in their essence from those of the other sciences".

Prof. G. H. Mead's essay on *Scientific Method and Individual Thinker* points out that in the traditional logic the new facts which come in at the growing points of a science have always been described in *ex post facto* terms. 'Romantic idealism' treats them as embodied instances of universals, without inquiring how the universal is fitted on to the 'instance'; 'positivism treats as instances of a *new* law what is actually found to be an exception to an *old* one. The actual procedure of scientific reasoning exhibits a series of conflicts between current theories and new observations; these are resolved by a series of tentative hypotheses of which the formulation is continually being changed and to which the data never do more than approximate. In science therefore, "there is no such thing as formal implication" (p. 213), and the 'universals' used "when applied to nature are all hypothetical," while "experiment is the testing of an hypothesis" (p. 215). But hypotheses are not peculiarly 'subjective,' and there is no difference in kind between "the stuff of the world and of the new hypotheses" (*ibid.*). "Science always has a world of reality by which to test its hypotheses, but this world is not a world independent of scientific experience, but the immediate world surrounding us within which we must act" (p. 226). So "the epistemological problem, having seemingly died of inanition, has been found to be at bottom a problem of method or logic" (*ibid.*).

Prof. B. H. Bode's *Consciousness and Psychology* takes its departure from the difficulties the latter has in defining the former, and advises it to make its 'selective or teleological' character "the fundamental and differentiating trait of conscious behaviour" (p. 240), which gives it "a direction with reference to results that are still in the future" (*ibid.*). From a functional standpoint it becomes evident that the 'simple' sense-qualities of Locke, etc., are not simple but extremely complex and "last results of analysis" (p. 245). *En revanche* there is no ground to accuse perception of 'subjectivity' (p. 246). Throughout "conscious behaviour is essentially experimental" (p. 247), and "all experience is a kind of intelligence, a control of present behaviour with reference to future adjustment" (p. 249). The difficulties of the mind-and-body puzzle are traced to "the prejudice that experience or knowing is a process in which the objects concerned do not participate" (p. 254), whereas "the process of intelligence is something that goes on, not in our minds, but in things; it is not photographic but creative. From the simplest perception to the most ideal aspiration or the wildest hallucination, our human experience is reality engaged in the guidance or control of be-

haviour. Things undergo a change in becoming experienced, but the change consists in a doing, in the assumption of a certain task or duty" (p. 255). This radical insistence on a really biological psychology is followed by a criticism of 'introspective' psychology, which is found to rely on "the distinction between focal and marginal experience," and to reduce "changes in the stimulus to terms of static entities, denominated sensations and images" (p. 274). But this distinction too does not exist *per se*; it is relative to the function of the 'margin' "as a clue or cue to some further experience" (p. 267) and 'introspection' is not properly "a method but a problem; the problem, namely, of interpreting given facts with reference to their function in the control of behaviour" (p. 269). Prof. Bode concludes by urging us to abandon the sterile inquiries "how consciousness can lay hold of passive objects, or how knowledge *überhaupt* is possible," in order to trace "the wondrous activity whereby this plastic dance of circumstance that we call the universe transcends the domain of mechanism and embodies itself in the values of conscious life".

Prof. H. W. Stuart in *The Phases of the Economic Interest* proposes to trace the bearings of the pragmatic notion of "personal growth through exercise of creative or constructive intelligence" (p. 283) upon economic theory. He finds that there is a certain interest in, and desire for, novelties as such, so that the supply of a tempting novelty, *e.g.* of a motor car, may create the demand, and entail a readjustment of a man's economic mode of life. The adoption of a novelty is thus always a personal adventure, not a formally guaranteed deduction from the routine of fixed values. It involves a moral issue because economic 'choice' is really 'constructive comparison'. Thus "real economic progress is ethical in aim and outlook" (p. 352), and the appropriate task of economic theory is not the arrest and thwarting but the steadying and shaping of social change" (p. 353). Prof. Stuart's essay also contains some suggestive remarks on the logic of novelty.

Prof. J. H. Tufts in *The Moral Life and the Construction of Values and Standards* declares that in ethics mere empirical description of what has been is futile while "intuitions and deductions *a priori* are empty" (p. 356). The moral life is "a constant process of forming and reshaping ideals and of bringing these to bear upon conditions of existence" (p. 357), in which four factors are to be emphasised—(1) Life as a biological process involving relation to nature—despite the protest of pessimism (which is held to be directed only against life as painful) and men's willingness to sacrifice life. (2) Life in common, with the social instincts and aims which shape the individual's ends and duties. (3) Intelligence and reason which ruminate upon life as a whole and enlarge it in imagination. (4) The process of judgment and choice which creates the concepts and standard, of

'right' and 'good' and determines the moral self and the objects it values. It is denied that 'right' is merely a means to 'good,' and claimed that it "has a place of its own in the moral consciousness" (p. 382), and is rooted ultimately in social needs. It is denied that the current terms of ethical discussion, like 'reason' and 'passion' are adequately analysed, and that a 'self' is necessarily 'selfish'. "Moral progress involves both the formation of better ideals and the adoption of such ideals as actual standards and guides of life." But they can be constructed "neither by logical deduction nor solely by insight into the nature of things—if by this we mean things as they are" (p. 404). Pure reason cannot "discover a single forward step in the treatment of a social situation or a single new value in the moral ideal". "The moral life is spiritual . . . and spirit is creative" (p. 408).

Dr. H. M. Kallen concludes the volume with an essay on *Value and Existence in Philosophy, Art, and Religion*, which is the only one that aspires to scintillate stylistically. He leads off with the paradox, to which writers on philosophy have given too much colour, that "a profundity is a commonplace formulated in strange or otherwise obscure and unintelligible terms," and exemplifies it by the 'commonplace' that the world was not made for man, though he has contrived to grow up in it. It contains, in consequence, for him a 'problem of evil,' which becomes 'metaphysical' when he contradicts experience by insisting that nevertheless the world shall be thought absolutely good. Why does he so insist? Because nature does not yield him all the values he demands. These values are natural existences, but their *locus* is the mind, not external nature. Human nature *forces* value upon nature and "it follows that Value is in origin and character completely irrational" (p. 413). Values are "compensations in idea" which are substituted for existence (p. 423). Among them are 'the unity of the universe,' its 'spirituality' which mitigates even Evil by humanising it into Devil (p. 420), its 'eternity,' and the postulates of immortality and freedom. Philosophy thus assures us that the real world is 'appearance' and that its own ideas are 'reality,' but it remains reasonable only so long as it does not confound these pure value-forms with existences. Art "converts values into existences, it realises values . . . it creates truth and beauty and goodness" (p. 437). But it remains within experience and "does not claim for its results greater reality than nature's" (*ibid.*). Religion *conserves* values, the values postulated by Philosophy, not as transcending the world of experience, but as continuous with it. It transmutes necessity into providence, sin into salvation, value into existence. Together they substitute for the piecemeal conquest of evil called civilisation, which has no promise of finality (p. 453), an order of hypostatised ideals which involves a flat denial of reality to existence (p. 454). Yet Philosophy, Art, and Religion alike are social facts relative to a context in a changing world (p. 455), but they

are more or less separated from it. This separation goes furthest in Philosophy. "It establishes contact with reality at no individual specific point: its reals are 'real in general'." Hence "it forfeits relevance to everything natural; touching nothing actual it reconstructs nothing actual" (p. 463). Its traditional systems "are works of art, to be contemplated, enjoyed and believed in, but not acted on" (*ibid.*). "Where action is a consequence of a philosophic system" it ceases to be philosophy. Philosophies therefore should abandon all pretence to be true and be content to be beautiful (p. 465). Should they wish to claim truth, they must look forward rather than backward, acknowledge the reality of change and the irreducible pluralism of nature, and must experiment. Such a philosophy can be "believed in, but no longer without risk, for, without becoming a dogma, it still subjects itself to the tests of action. . . . It infuses existence with value, making them one. It is the concrete incarnation of Creative Intelligence" (p. 467).

Thus does Dr. Kallen heroically overcome in the end the dualistic antithesis he set out from, and I cannot but think that he has also himself supplied the refutation of his initial paradox. For though the antithesis of value and existence may be admitted to be commonplace and may perhaps be 'obscure and unintelligible,' it is assuredly neither profound nor convenient. Indeed it may fairly be contended that Dr. Kallen's argument proves its shallowness. He has repeatedly to admit that values turn into existences in various ways and existences into values. It would have been much simpler and easier to have repudiated so misleading an antithesis altogether, and to have shown instead why and how all the 'existences' predicated in any science turn out to be at bottom 'values,' which owe their rank to the fact that the science has seen fit to *prefer their claim* to any alternative known to it. Scientific 'truth,' therefore, is just as much constructed out of value-judgments as philosophic, or religious or artistic truth. And if it is necessary to pander to the prejudice that whatever man touches he defiles by humanising, we cannot help admitting that Science is just as human, 'subjective' and corrupt as Religion, Art and Philosophy. The admission will not in the end hurt any of the four, and may even arouse qualms in some philosophic minds about the wisdom of the attempts to extrude the knower from the scheme of knowledge. Conversely, if we leave ourselves free to recognise that it is an everyday event for a 'value' to realise itself and to come into 'existence,' we shall be much less fascinated by the intellectualistic misinterpretations of the human ideals and activities called Science, Art, Religion, and Philosophy which are traditional, and shall be more ready to perceive that they can attest, not only their 'value,' but also their *truth*, by the functions they fulfil in human life. To any deeper analysis therefore it will seem futile to deny that 'values' and 'facts' are commensurable; the questions it will be profitable to debate will all

concern the *rate* at which the various sorts of value are exchangeable into each other and the weight that should be assigned to each in the various sorts of inquiry.

In general it should be noticed that many of the leading ideas recur in various settings throughout these essays. The reason plainly is that pragmatism is naturally so coherent a philosophy that whoever has grasped its meaning and method is bound to apply it in the same way. I have not therefore myself had any serious difficulty in following and assenting to all the essayists' pragmatic applications, even where they had never occurred to me before. Only for the sake of the weaker brethren one could sometimes have wished for easier reading, with more illustrations and documentation and more precise references, as well as such mechanical aids to comprehension as an 'argument' or a summary. But possibly the difficulty of the book is an intentional reaction against the popularity of James's pragmatic writings, which the man in street found so easy to follow that the true professor always felt it a little *infra dig.* to understand them.

F. C. S. Schiller.

The Idea of God in the Light of Recent Philosophy. The Gifford Lectures delivered in the University of Aberdeen in the years 1912 *and* 1913. By A. Seth Pringle-Pattison, LL.D., D.C.L., Fellow of the British Academy, Professor of Logic and Metaphysics in the University of Edinburgh. Oxford: Clarendon Press, 1917, pp. xvi, 423.

The first series of these lectures is devoted to breaking down Agnosticism, by demonstrating the intimacy of the human spirit with nature and the universe. Beginning with an attractive account of Hume's *Dialogues Concerning Natural Religion*, the author exhibits at starting the extreme conception of severance between the ultimate power of the universe and the values recognised by man. From this extreme of severance he proceeds to trace throughout nineteenth century thought the growing acknowledgment of man's oneness with the universe. The idea of objective or intrinsic value, he points out, appears decisively in Kant, though unduly limited, and so far as implying a deity, cast in a strangely mechanical mould. Nevertheless "the conception of intrinsic value as the clue to the ultimate nature of reality, is the fundamental contention of all idealistic philosophy since Kant's time" (p. 38).

The concluding pages of the second lecture, which deals with Kant, express concisely and felicitously what is necessary to be said about the objectivity of value and the desire for immortality. "It is well for us all sometimes," the author quotes from George Adam Smith, "to pitch our religious life in terms which do not include the hope of a future." We are not to argue that the uni-

verse was arranged for our satisfaction as given finite personalities. What interests us is rather to know if the real is to be found on the lines of what we experience as greatest and best. The conservation of values is the essential; and I am not sure that the author holds the survival of individuals after death to be necessary to it, though he certainly rejects any dogmatic decision in the opposite sense.

The following lecture (III) depicts the nineteenth century affirmation of value on that side of it which recognises in Lotze's phrase 'a chasm that divides the world of values from the world of forms' (p. 55). Here he discusses Lotze himself, with Lange and Ritschl, and ultimately Herbert Spencer's Unknowable, referring at the end to the hazardous attitude of something like irrationalism suggested in Mr. Balfour's critical treatises and outrageously emphasised in Mr. Kidd's *Social Evolution*.

From this point forward, having stated the antithesis which is his problem, the author pursues a progressive argument, and the three following lectures seem to me the strongest and most instructive in the earlier series. The first of these (IV) is devoted to the present movement in biology, treating it as a liberation of the century from mechanistic ideas. The statement is guarded, much on the lines of Dr. Haldane's well-known researches, and while insisting on the right of biology to use its own conceptions and to recognise the living creature as maintaining its own norms by its individual reactions, it commits itself to no pseudo-spiritual agencies, such as those named entelechies, which are really themselves mechanical. And so the author portrays the nineteenth century as ending face to face with the reality of life, and conscious of fresh interests and new horizons, with 'philosophy girding itself anew for its synthetic task'.

The same plan of argument is carried forward in lecture IV, "The Lower and the Higher Naturalism". For explanations which level downwards the Higher Naturalism substitutes a continuity which does justice to all breaks, and in acknowledging our affinity with the brute creation does not deny the further outlook of the human mind. From this position lecture VI "Man as Organic to the World" goes forward to insist on the naturalness of man's knowledge and valuations, as the direct insight of a being who is no outsider, but is at home, so to speak, in nature and the universe. So that, for example, man's sense-organs are there to make him acquainted with the reality of things and not to cut him off from it. There is no ground for doubting the objectivity either of secondary qualities or of æsthetic properties. "Things are as they reveal themselves in their fulness to the knowing mind" (p. 130). The reality appears truly in its appearances. The opposite view, which involves the epistemological problem, is nothing but a mystification.

He proceeds to compare, as embodying opposite half-truths, two opposite cases of such a mystification. First comes (lecture

VII) the positivist Humanism, a religion whose object is humanity apart from nature; and then (VIII) Herbert Spencer's Unknowable, as the universe apart from human experience. The two, in comparison, are taken as exhibiting the logical and religious defectiveness alike of an appearance which reveals no reality, and of a reality which does not appear. It is noteworthy that while criticising Comte's separation of Humanity from nature the author strongly repudiates the censure that as an object of worship it is in itself abstract. I cannot sympathise with him in this attitude, though, no doubt, it is attractive to-day. The unity of humanity seems to me rather a hope, than a reality such as we have in England or Italy to which the author compares it.

The definite though general conclusion of the first series is stated in the opening pages of lecture IX on "Idealism and Panpsychism". It consists in affirming, against the mystifications of agnosticism, the emptiness of insisting on the mere arcanum of being, and the truth of the revelation which Reality and the immanent God make manifest in appearance. Man is organic to nature, and nature is organic to man. Man is the voice of nature, and nature the basis of man.

The remainder of the ninth lecture and the whole of the tenth are devoted to removing what appear to the author to be misconceptions more or less akin to his doctrine. Panpsychism seems to him to deprive externality of its necessary place in the universe, and as an attempt to derive the reign of law from absolute contingency (see p. 185 on Mr. Peirce's view) to mean "evolving out of pure chaos the very conditions of evolution itself". He seems to me to be right.

The last lecture of the first series (X) is devoted to a disclaimer of Mentalism, as a doctrine akin to Berkeley's, and distinct from the argument which the author maintains, that a *res completa* implies a mind at its centre. I accept the distinction, and surrender subjective idealism to the author's censure. But two reservations on his argument appear to me necessary.

First, in rejecting Mentalism one should beware, I think, of abandoning the distinction which alone made it possible to include a sound Realism in our views, if I rightly understood the author's reasoning. Let me put together two instructive passages from the lectures. On p. 132, summarising the main argument of the earlier series, the author speaks thus. "The whole conception of reality as meaning *existence apart from being known*,[1] and the accompanying theory of truth as lying in the correspondence of knowledge with what is by definition unknowable[2]—this whole conception, with the agnosticism inherent in its very statement, is swept away by the view which I have been urging. That view abolishes the thing-in-itself in the Kantian sense; or if the term is

[1] My italics.

[2] This of course the realist would not admit. I presume it to be the author's deduction from the conception of reality just mentioned.

retained, it teaches that the reality of the thing is not *the thing apart from knowledge*[1] but the thing conceived as completely known, the thing as it would appear in its complete setting to a perfect intelligence. Mind is thus no more condemned, as it were, to circle round the circumference of the real world, put off with outside shows, and unable to penetrate to its essential core. Mind is set in the heart of the world; it is itself the centre in which the essential nature of the whole reveals itself." On p. 192, in this tenth lecture, while arguing, in general agreement with Prof. Perry, that Berkeley's reasoning is circular, he says "But that (the centrality of the ego) of itself decides nothing as to *the existence of things before or after they were known and entirely apart from their being known*".[2] Now I think with Avenarius, that if we are to be faithful to a view like that of p. 132, to which I certainly adhere, we must not, with realists, whether new lights or old, raise the question of existence apart from knowledge. If we do, we break up our synthesis of reality, restore the chasm between knowledge and existence, and with it the whole epistemological mystification which we claimed to have set aside. But I note that on p. 200 as on p. 192 the author seems to weaken about this. His own and Prof. Laurie's reasoning (p. 123) that a universe without mind is not a *res completa*, now seems to him less cogent than the argument from our habit of valuation, and even this latter perhaps to be impeachable as circular in its proof. His point is now rather the defect of bare cognition as against emotional valuation. Here, it seems to me, we recede a little from the position of lecture III and lecture VII.

And secondly I hold it to be a historical mistake to accuse Green of Mentalism in the Berkeleyan sense. I believe the truth to be that Green's work was so thoroughly done, that James and others who entered into his labours forgot that it was he who had done it, placing them in possession of the determinate sense-perception as the primary datum. And they accused him, as the author accuses him, of the error which he mentioned only to confute. I cannot argue the point at length. And it is here only a side-issue.

What the author desires so far to establish is that (he quotes from Kapila) "All external things were formed that the soul might know itself and be free".

Proceeding then from the position that in appearances we have true experience of the universe and God, the second series of lectures approaches the problem of their interrelation. First (lecture XI) it is pointed out that the conception of immanence is stultified if value and reality have no degrees. Hence we have to consider the criterion (lecture XII). On p. 223, in the preceding lecture, it was laid down that judgments of value are self-affirmations of the systematic structure of reality (I abbreviate the phrase) and by no means detached intuitions of this or that faculty. I was therefore

[1] My italics. [2] *Ibid.*

disappointed to find in the discussion of the criterion that when we come to give its proper name—the name of non-contradiction —to the spirit of systematic reality, and to trace it through the manifestations in which alone it can be understood or exist, the argument is received with suspicion, and stress is rather laid on the emotional appeal of these manifestations themselves. So that the great principle which for some of us so profoundly links together Republic 585 and the early chapters of St. John's gospel, has its connexion cut, and our mode of conjoining value and reality is almost thrown back to that which we rejected in lecture III. Not that the appeal to emotion is unmeaning, but that it derives its cogency from the sense of fulness and satisfaction which is easily seen to rest on a quality of unfailingness in the object which satisfies—and this is the quality which links reality to value. Most satisfactions are but little satisfactory, and none that are finite are so wholly. It is to ensure that we approve them on the true ground, and not to dispense with appreciative experience, that attention has been called by name to "satisfactoriness" in its essence.

Thus in developing the conception of value from the middle term of satisfaction, the author goes forward rather to conation under the name of teleology (lecture XVII) than to fruition as transcending conation; and, not insisting at the moment on the clue derivable from æsthetic experience, maintains the inseparability of value from "the idea of purpose and realisation" (p. 335). I do not think that the *prima facie* incompatibility between fruition and the psychologist's conation, which has its "end" rather by satiation than by satisfaction, receives sufficient weight. I do not doubt that the two aspects must be brought together. But I think that the modification of the straining ethical temper must be deeper than the author appears to feel necessary.

Whatever the modification may be, we may agree with him that at its highest teleology[1] passes into value; that in some sense the unity of the world of time may be described as the eternal purpose of God (p. 340); and that in some characteristic akin to this unity we may seek the clue to that transcendence of time which we call eternity (lecture XVIII). The quotation from Prof. Taylor on p. 360 shows the constructive aspect of such a conception; that from Prof. McGilvary on pp. 363-364 shows the paradox which results when it is pushed to the bitter end. We are bound, I think, to suppose, with the author, that an inclusive experience, other than a repetition of particulars, is possible. If not, all completion must imply a loss.

In pursuing the connexion between value and teleology, I have passed over lectures XIII to XVI inclusive, all of which deal, in effect, with the finite individual in his relation to the perfect being. I may observe in passing that the author seems to recognise no distinction between God and the Absolute,[2] and is therefore, I

[1] Prof. Burnet even tells us that the word implies perfection and not end at all (τέλειος not τέλος).

[2] He discusses Canon Rashdall's view.

think, obliged to treat as ultimate characteristics which rather belong to the special provinces of morality and religion. God, for religion, must take a side, and perhaps be a 'person'; the Absolute cannot be a part within itself.

Still, what the author requires for the finite individual is definite and considered. He is resolute that a self must have freedom and a certain independent status. He is opposed to any hint of ultimate unreality in the self as we know it, to regarding it as a character rather than as a member of the universe,[1] and to suggestions that its being is likely to be transitory. He feels, I think, that the value of soul-making is endangered if souls are continually to be remade. Perhaps a precisely opposite view on this point is tenable. But as I have said he does not commit himself to personal survival as indispensable to the conservation of values.

On the other hand, while accepting for the self the Aristotelian idea of *πρώτη οὐσία*, he repudiates "the old metaphysic of substance" (p. 290, *cf.* 272). He intends to guard his doctrine against any independence that would break up man's unity in and with the divine spirit, emphasising his position by criticism of Dr. Howison and Dr. McTaggart. To reduce the spirit-world to a republic of related selves seems to him a nineteenth century caprice.

He is determined that man shall not be regarded as a being to whom God is merely transcendent, but no less so, that his will shall not be a mere conduit—he often insists on such metaphors—for the divine volition. Obviously, I think, his view is on a razor-edge balance; but he is finally influenced rather by ethical and conative than by religious and æsthetic experience. He goes so far towards independence, if I read him right, as to deny that in me the good or divine and the erring or human will can both of them be *my* will "in a single personality" (p. 288), yet if not, what becomes of immanence? In interpreting creation as offering the necessary counterpart to the life of God he thinks more of the finite world of spirits than of the qualities which must be realised in a perfect experience such as "beauty and delight". Love, as a personal relation, he strongly emphasises. Thus, in regard to qualities like the two former, his tone is other than, for example, Mr. Bradley's. He keeps the individual selves more ultimately separate, and in a special note (p. 296) rejects the present writer's use of the social analogy to elucidate the unity of different persons. It might be observed upon this note that you may give the name of heightened individuality to the enlarged experience of the self in the social life, but none the less as an actual feeling and attitude it is the polar opposite of what we mean by the primary awareness

[1] He censures the present writer's rejection of the term "membership" as applied to the self in the universe. It was due just to that shrinking from the "old metaphysic of substance" which he himself expresses. The acceptance of the term seemed to pledge one to the eternal self-existent differentiations, which as demanding pre-existence, and in view of grades of mentality (including those of brutes), cause so much difficulty.

of limits in which the separate self is realised. I think there is some source of error in the author's connexion of time and space with individuation. And if one inquired what and where the finite self really is, the repugnance to blending might seem less reasonable, and the moral of love might be other.

The two concluding lectures insist on the author's view of progress in the universe, and of pluralism and the problem of evil, through criticism of Bergson, James, and Dr. McTaggart, and in dealing with happiness and omnipotence, of Hume and Mill.

The criticism of Bergson's treatment of the future as contingent appears to me highly successful. "To regard the future in this inorganic fashion, as something entirely new, in which anything may happen, is to desert the principle which has already been acknowledged in the relation of past and present" (p. 377). And other criticisms seem no less valuable.

It is inconceivable to the author that growth or novelty should belong to the universe as such; and here again his argument seems highly successful (p. 381) "whatever qualities it (the existent universe) may exhibit, must be due to its own inherent constitution". You can have novelty in parts, because it can spring from a source in the whole; but novelty of the whole has nothing to spring from. The problem is due, I should add, to not having grasped the nature of synthetic necessity. I believe a false disjunction "either analytic or pure novelty" is operative in it. In fact, every syllogism and every proposition is synthetic. The point was well anticipated earlier in the book (p. 155). "The novelty is due, surely, to the inexhaustible nature of the fountain from which we draw, not to any inconceivable birth of something out of nothing."

For the author the life of God is an eternal deed, the perpetual redemption of the finite world which is not external to him. "The divine life is in short the concrete fact of this intercommunion."[1] The divine omnipotence is simply the power of love to overcome all evil. And we understand that while God is certainly not finite he participates, through his immanence, in the effort and suffering of the creature. We can only understand evil, if we take seriously the freedom of the finite world. It looks too bad to be possible. We should not have made it so. But then we should have had nothing great. It is akin to what Hegel says in the famous passage about the Täuschung (p. 412). Here I find the author's criticism unappreciative. I think he does not like paradoxes; but they are often illuminating. What Hegel is affirming, surely, is the essence of justification by faith. What obstructs you is but an illusion; believe, and it is gone. The bald simplicity of the requirement along with its huge impossibility for the natural man, is surely the fundamental paradox of religion. The eternal deed cannot wait upon you to do it, for you, as you, are powerless

[1] Canon Rashdall's and Prof. James Ward's positions are discussed in lecture XX.

to do it. But if you have faith as a grain of mustard seed, you become a co-worker all the same, both practically and in heart and mind.

As I have suggested that the author insists too much on the ethical and independent side of the self, I am bound to point out the passage (p. 396) where in criticising James he clearly exposes the weakness of the moralistic attitude made absolute, and assents to Mr. Bradley's saying that to take it so "is to have broken with every considerable religion".

The central purport of the book is well emphasised in a footnote (p. 409 n.) which he calls attention to Dr. Streeter's remark that "so far as the imagination of the Church is concerned [as contrasted with the creeds] it is the Arian who has triumphed". While retaining theism, to undo that Arian imagination of the Trinity which in the general mind evades the implications of the Incarnation, is what the author has had at heart.[1] It is theism thus modified which alone seems to him worth fighting for, and it depends upon being in bitter earnest alike with immanence and with the freedom of the finite world. The author is by temperament, I should imagine, balanced and a little reserved. He dislikes extravagances and forcing arguments, and abandons others when he sees this in them. Thus he breaks away from Hegel, say, or from Mr. Bradley, at points where in my judgment they have seen important truths. Nevertheless, his statement, taken as a whole, is central, so to speak, and puts before the reader concisely and lucidly a doctrine at once sane, and suited to our time. It marks, I hope, a gain of ground which, to use a current phrase, has been consolidated, and will not be abandoned.

BERNARD BOSANQUET.

The Theory of Beauty. By E. F. CARRITT. Methuen & Co. Pp. 304.

THIS is one of the most useful and comprehensive books on the Philosophy of Beauty which have appeared recently in the English press. It is characterised by sincerity of style and sanity of judgment, and reveals a wide knowledge of pictorial art and literary criticism as well as of the history of æsthetic theory, all admirably used for the purpose in view. The greater part of the book is occupied with a discussion of the chief historic theories of beauty. The most important part of the book, however, is the very able critical exposition of Croce's Expressionist Theory. "I believe," says Mr. Carritt, "that a greater amount of truth is contained in Croce's *Estetica* than in any other philosophy of beauty I have read. But its method, both in theory and history, is too brilliantly cursory to be conciliating."

[1] It is only just, I think, to recall at this point, M. Arnold's 'Fairy-tale of the three Lord Shaftesburys,' which did, surely, much of what the author desires.

This book certainly makes Croce's view more intelligible, and as modified by Mr. Carritt, much more reasonable. Mr. Carritt's criticism of Croce, however, applies perhaps in some measure to his own work—it is "too brilliantly discursive to be conciliating". Indeed Mr. Carritt modestly disclaims any pretence at finality. "I do not pretend," he says, "to have reached a solution satisfactory even to myself."

The comments upon the historic theories are generally full of insight, and the author shows great skill in leading from them to his own view. Yet it is this approach of the subject from so many different points of view which tends towards some discursiveness of treatment, and it is to be hoped that in the next edition of his book Mr. Carritt will extend the exposition of his own theory, even if it involves a reduction of the historical portions.

The main criticism which I am inclined to make upon the book is that it is lacking in thoroughness of psychological analysis of the æsthetic experience. Mr. Carritt has apparently ignored the literature of the psychology of æsthetics, with the exception of Lipps and his theory of Einfühlung. Thus, in the very extensive list of authors quoted (the names of authors and artists referred to number over two hundred) we find not a single mention of H. R. Marshall, Lalo, Fechner, Bullough, Puffer, Martin or Müller-Freienfels. I am aware that some æstheticians would say that psychological analysis of the æsthetic experience is irrelevant, contending that we have only to examine the objects which men regard as beautiful to discover the essential characteristics of beauty. Indeed Mr. Carritt himself says at the outset that the object of æsthetics is "to discover what the common quality or relation to ourselves may be in all those things which we call beautiful". It is unnecessary to press the fact that we must first decide who is to select the objects; for, at the crucial points, Mr. Carritt falls back upon the nature of the æsthetic *experience*. Thus the moral theories of beauty are dismissed because they do not describe our æsthetic experience. "I have tried," says Mr. Carritt, "to criticise various theories in respect of their harmony with those facts of æsthetic consciousness which it was their business to explain. I have hoped to show that divergent systems are all intelligible attempts to state the same experience." It may reasonably be asked "how can we be sure it is the 'same experience' without first careful introspective analysis on the part of the experiencer and a full description afterwards"? The mere saying "I regard these objects as beautiful" is inadequate; there is no proof that the experiences are always the same. Indeed in his treatment of the sublime Mr. Carritt shows that the nature of his own experience of the sublime differs fundamentally from that of Mr. A. C. Bradley. Why should not equally important differences be discovered, on sufficient enquiry, in reference to the experience of a beautiful object other than sublime, so that, as is

indeed a matter of common experience, a thing may be beautiful for one person and not beautiful for another, without either being lacking in general æsthetic sensibility or training? I suppose that Mr. Carritt would admit this. In reference to the sublime he says, "It is obvious and irrelevant that what in ordinary language would be called the same object may at the same time appear sublime and not sublime to equally good judges".

Now if the same thing may appear beautiful to some persons and not beautiful to other "equally good judges" it seems hopeless to approach the problem of æsthetics otherwise than from the point of view of the psychological experience involved. Indeed, other passages show that Mr. Carritt holds that it is the *attitude* that counts, and that he would say of the beautiful and the ugly what he quotes Wordsworth as saying of the beautiful and the sublime, "Our business is not so much with the objects as with the law under which they are contemplated". His emphasis upon this is shown again in his statement that "art and nature are really in essentials one and the same thing, since both need the appreciative activity". And that it is the attitude and not the object with which we are concerned is still more clearly shown in the following passage: "It is not the written or spoken poem nor the perceived atmospheric conditions which must strictly be called beautiful, but only a particular way in which at a given moment any individual expresses himself in them".

This subjective approach then really seems to be Mr. Carritt's view of the method of æsthetics. Yet elsewhere he says, "We could only understand beauty by examining what we actually make or find beautiful". It is very doubtful whether this is consistent with ultimate dependence on the experience: and the inconsistency is still more striking when Mr. Carritt says (p. 127), "Beauty is a gift of the spirit for which *all things* are possible objects". I am not opposing this particular doctrine. Personally I should agree that the æsthetic attitude may be adopted, though sometimes only by deliberate volition, towards the *prima facie* most uninteresting things (*vide* R. L. Stevenson's essay "On the Enjoyment of Unpleasant Places"). The point is that, if this is the case, the ultimate thing for examination is the æsthetic experience and not the beautiful object. Of course this would not prevent us from naming subsequently any characteristics of objects which it may be found are *prominent* before the mind when the æsthetic experience is being enjoyed, and thus we may get at a point of view which is in a sense objective.

A second point of fundamental importance is the question of the universality of beauty. Mr. Carritt comments upon the fact that the æsthetic theories of the philosophers have been affected by their own æsthetic feelings, and surely any theorist is exposed to the same danger. If so, do we not require to collate the experiences of many and not to rely too much upon the experience only of others who have written on æsthetics? If that is done,

one is at once impressed by the extraordinary variations in the elements of the æsthetic experience which seem prominent in different individuals. Of course whenever there is an experience which can properly be called the æsthetic experience there must be some characteristic which is common to all such experiences, otherwise the term becomes meaningless. But there is a sense in which, I think, Mr. Carritt appears to be too ready to assume the universality of beauty. He admits variation in taste as we have seen, but there sometimes appears an underlying assumption that, given proper æsthetic education, the same beautiful objects would appeal to all. "By practice . . . of our æsthetic faculty," he says, "we improve upon our first crude apprehensions of beauty." Yet often fuller practice in æsthetic education leads two persons to contradict one another in their æsthetic judgments more flatly than ever. Do the experts differ less than the common people in their pronouncements upon a new book or opera?

There are passages in which Mr. Carritt really seems to agree with the drift of the present argument: and when these are followed up the universality he claims for beauty becomes vague and shadowy. "There must be allowed," he writes, "an infinite number of ways in which our faculties can harmoniously and freely interact, and the same external object might stimulate different interactions. The universality, then, which is claimed by our æsthetic experience does not deny the rightness of a different æsthetic experience in face of the same external object, it only asserts the possibility and goodness of our own experience for every rational imagination." Yet "If it (the beauty of a tulip) is really an expression of something really felt, it is 'true' and universally valid—that is to say, is really an expression: but it might very well happen that nobody else had this vision or these sensations, even in face of the tulip". Apparently then the only universality which we can claim is that "If anyone else could be in exactly our situation, in the same frame of mind, let us say, and confronted with the same physical stimulus, he ought to be able to make this æsthetic experience out of it, or else we have not made all that we might".

The impression one gets indeed is that Mr. Carritt, starting out from philosophical training and especially historical studies with a decided universalist view of beauty, is constrained, by his own natural openness of mind to facts, towards an abandonment of any doctrine of universalism other than this: (I.) that while object X may be beautiful to A and ugly to B (even equally good judges), and A has no right to say that B *ought* to judge it beautiful; (II.) and that while the object X, though beautiful to A and beautiful to C, may give total æsthetic experiences which are very different in their respective cases, yet (III.) there *is* a common element in the two experiences and that this justifies the name æsthetic experience.

I suppose the most subjectivist æsthetician would not dispute this degree of universality in beauty.

The common element in (III.) above would for Mr. Carritt (and for Croce) be "expression"; only he would apparently say, with Croce, that the *whole* of the æsthetic experience can be adequately described by the term expression, so that the differences between A and C in (II.) above must be non-æsthetic. Now it is precisely in these differences that the richness of varied forms of æsthetic experience may consist, and which it seems to me may be and are revealed by more thorough psychological investigation.

Mr. Carritt breaks with Croce (rightly as it seems to me) on three important points. He includes the beauty of nature under beauty proper, here again falling back upon his own æsthetic experience. "I do not know," he says, "if the gait of children is to be called art or nature, but I trace no difference of kind in my enjoyment as between the most artistic dancing and the paces of a fawn or even the curling of a wave."

(II.) He opposes Croce's identification of intuition and expression. This doctrine the present writer has already touched upon (in the review of Croce's *Æsthetic*, MIND, No. 76, N.S.), but it may be pointed out here that Croce's view may contain this approach to the truth—that any intuition so far as determined *by the nature of the object* is capable of becoming æsthetic experience. We have to look to subjective conditions to see whether and why the intuitions do become æsthetic.

(III.) He rejects Croce's paradoxical view that there are no degrees of beauty, that there is no expression except perfect expression, and that it is in every case therefore equally expressive or beautiful. The whole of his criticisms of Croce on these three points seem to me sound, and convincing.

"My reading of Croce," writes Mr. Carritt, "has convinced me that the expression of any feeling is beautiful." It is important to notice that he is using "expression" here in Croce's sense—expression by the self to self. He would not hold that the scowl on a murderer's face or on the painting of such a subject—though expressing hatred—*must* be beautiful; only that it may become beautiful and does "if contemplated without practical interest, without scientific abstraction, and without existential judgment *as* the pure expression of emotion."

This use of expression in the sense of "expression to self" seems to me misleading, except in reference to those cases in which we ourselves, as artists, or in imagination, create the "sensible form" which is essential for the embodiment of our emotion. Even granting that it represents an element always found in the æsthetic experience, it seems to me that the plain words, "I find that expressive (of this or that emotion)" are at least as accurate as, and much less likely to mislead the average reader than, "I express this or that emotion to myself in that". (This is not a quotation but it indicates correctly, I believe, Croce's view of expression, of which Mr. Carritt approves.)

"In the history of æsthetic," concludes Mr. Carritt, "we may discover a growing consensus of emphasis upon the doctrine that all beauty is the expression of what may be generally called emotion, and that all such expression is beautiful." But in this sentence "expression" must surely be read in the more objective sense, *viz.*, that the *artist* has expressed the emotion for us in his work. To the statement that all objects when judged beautiful are in some way expressive, few, I suppose, would now demur. But from this "object" point of view the expressionist school of Croce has, I take it, definitely turned away. Croce's view is, in fact, decidedly a psychological approach to æsthetics. But it is precisely as a psychological account that its incompleteness is most evident. For example, it ignores elements which, even if variable in different arts and different individuals, contribute to the total æsthetic experience, and it omits reference to the essential conditions of attention in the apprehension of the beautiful, which are at least as characteristic of the æsthetic attitude as is expression to self of an emotion.

These comments are, I admit, only prolegomena to a full reply to Mr. Carritt's theory, but I have thought it well to dwell upon the fundamental question of the method and scope of Æsthetics. I feel also that I have failed to do justice to the many excellent discussions of individual questions scattered throughout the book, and particularly to the perspicacity Mr. Carritt has shown in criticising the most disputable and yet very characteristic views of his master Croce.

C. W. Valentine.

VII.—NEW BOOKS.

The Philosophy of William James. By Th. Flournoy, Professor in the Faculty of Sciences, University of Geneva. Authorised Translation by E. B. Holt and William James, Junior. London: Constable & Co., 1917. Pp. vii, 246.

A short account of the original edition of this book was given by Dr. Schiller in Mind, No. 82, page 279. In the translation its lucidity and charm are still remarkable, and English readers will certainly get the impression which its author wished to give of William James,—of a personality so wide and sympathetic, so full of energy and frankness, as to make his philosophy attractive.

After some introductory chapters noticing certain influences which helped to form James's outlook and mental habits, a sketch is given of the leading ideas reached in the course of his philosophical career. Prof. Flournoy recognises, however, the difficulty of reducing to a system views which, essentially progressive, resented all such trammels. He finds it more suitable to take certain heads—Pragmatism, Radical Empiricism, Pluralism, 'Tychism,' Meliorism and Moralism, Theism, and the Will to Believe—and to give such an account as can be shortly given of James's conception of them. An Appendix contains a long review (which appeared in the *Revue Philosophique* in November, 1902) of "The Varieties of Religious Experience".

The peculiarities of James's style make exact interpretation of his doctrines often difficult, and specially in regard to Pragmatism and the Will to Believe. Prof. Flournoy's account of the former would have been more complete if he had dwelt more on the distinction between a criterion of meaning and a criterion of truth; which distinction some of James's own expressions tend to confuse though we can hardly suppose that he was unaware of its importance. It is this confusion that chiefly explains and almost excuses the violent opposition to Pragmatism that was at first felt by many philosophers; at any rate it helps to explain their doubt whether the need of objective verification was sufficiently recognised by William James.

Among pragmatist doctrines which, unless carefully interpreted, tend to keep this confusion alive, three stand out especially: that the truth of any judgment is to be judged by its consequences; that all truth is 'truth for a purpose'; and that every man's philosophy is dominated by his temperament. The first of these attempts to convey in one statement two distinct tenets—(*a*) That the truth of a statement cannot even be investigated until its meaning, as indicated by its supposed consequences, is known; and (*b*) that verification depends on comparing expected consequences with facts experienced. The second is capable of two distinct uses; either (*a*) for discovering the intended meaning (or absence of meaning) of a given statement which claims to be true, by raising questions about its purpose in application; and (*b*) for removing the appearance of self-contradiction in admitting that what is true to-day

may be false to-morrow. In this use its effect is to substitute the notion of 'sufficient' truth for that of 'absolute' truth, to recognise the irrelevance of the latter notion in all human inquiries, and to explain the discarding of older 'truths' in favour of newer ones by the novelty of the purpose for which the older truth is insufficient. The instability of truths is then seen to affect them only as used to answer questions not actually before us. Neither in these two doctrines nor in recognising that selection, or choice, is a necessary part of judgment is there anything to weaken our sense of the need of objective verification. So long as we admit that the selection necessarily made in all judgment is made at a risk of error, the personal element in judgment—being present everywhere—is seen to involve the need of constant criticism, whether the judgment be made by *orbis terrarum*, by a few, or by an individual. If ever a right selection can be made, by one person or by millions, 'bias' is shown not to be universally an enemy of truth.

But the main subject of Prof. Flournoy's book is the religious views of William James, as connected with his philosophy, and he seems to have caught the spirit of these with complete success. His account of them is sympathetic and full of interest.

A. S.

A Text-book of Insanity and other Mental Diseases. By Charles Arthur Mercier, M.D., F.R.C.P., F.R.C.S. London: George Allen & Unwin, Ltd., 1914. Pp. xx, 348.

Twenty-five years ago (Mind, XV., O.S., p. 551), I had the pleasure of reviewing Dr. Mercier's *Sanity and Insanity*. The fundamental concept of that book was that insanity is not mere unsoundness of mind, but disorder of conduct—"a disorder of the adjustment of self to surroundings". In the chaos of text-book materials the correlating power of the concept was manifest. Ever since those days my concern with insanity has been purely speculative. But I have followed in some detail Dr. Mercier's elaborations in his *Psychology, Normal and Morbid, and Conduct and its Disorders*. Curiously, I had not read the first edition of his Text-book; but my omission has this advantage, that the second edition now comes to me with the pleasure of novelty. And the pleasure is genuine; for this *Text-book of Insanity and other Mental Diseases* is a coherent application of fundamental principles to the organisation of practical study. The student that begins insanity under guidance of this book will not readily lose his way; for, in the wealth of material showered on him in the asylums, he will keep applying the fundamental ideas here so lucidly put—"the four-fold disorder of conduct, mind, metabolism and brain-process" (p. 118). If he chooses to think in pigeon-holes he will certainly find Dr. Mercier's study-diagrams as fascinating in practice as in theory. But what strikes me as the best practical point in the book is the bold triple classification by forms of insanity (insanity the symptom), by types of insanity, and by kinds of insanity (insanity the disease). Here one sees the advantage of logical canons of classification. "It is the endeavour to combine the form, the type and the kind, variety, or disease of insanity in a single scheme, and to divide insanity simultaneously on all three principles, that has vitiated and rendered invalid every previous scheme of classification; but though the three principles cannot be used simultaneously for the purpose of classifying insanity, this is no reason why each disease or variety should not have its own form or forms, and should not be of one or other type. Some varieties, such as paranoia, are of the same form and the same type

throughout, and never vary in these respects. General paralysis, on the other hand, may begin as an acute insanity, or may begin gradually and insidiously. Its form may be euphoric and exalted, or dysphoric and abased, or merely confused and amnemonic, and, subsequently, its type becomes chronic and its form anoiac In every case, the form is easy to observe, the type may be readily ascertained, but the variety may be long in doubt; the reason being that the form and type are chiefly to be ascertained by observation, while the variety rests upon induction, the data for which are not always to be had" (p. 221). It is no more to be expected that this severely logical classification will prevail among practical alienists than that the principles of a logical biology should prevail among practical physicians or surgeons; but the classifications are none the less of the highest teaching value. "The very important distinctions between the various defects of memory have never been described before" (preface). This claim I am not able to confirm or question; but the pages dealing with memory certainly deserve study. It is a great satisfaction to have run rapidly through the beautifully printed pages of this volume, which I did without first looking for an index. I can, therefore, enjoy all the more Dr. Mercier's apologia for his index-substitute. But it would be interesting psychologically to know what he really thought proleptically of his critics when he was constructing the indexes to the other three books named above, and whether he thought the books were not "logically arranged" (p. 348).

W. L. M.

The Problem of Personality. By E. N. Merrington. Macmillan & Co., 1916. Pp. viii, 229.

This little work, as the 'Foreword' tells us, was originally designed as a thesis for the Harvard Ph.D., and it may be said at once that it fully merited the bestowal of that degree. Whether it makes any real independent contribution to the topic with which it deals is not so clear. Of the two parts—the expository and critical and the constructive—of which the book is composed, the former will, I think, be read with the greater profit, inasmuch as the criticisms of well known thinkers like James, Bradley (who by the way is hardly treated with the courtesy which it becomes a young writer to show to a veteran philosopher), Royce, Rashdall and others are necessarily made fairly precise in their drift by the quotations upon which they are founded. The constructive part, devoted to a defence of the reality of personality, both human and divine, has been found by one reader at least hard to follow. The author has an ungrounded dislike of definitions, which he mistakes for attempts to silence criticism by an exercise of arbitrary caprice. He forgets that, after all, a writer in defining his terms is only attempting to make it quite clear to his readers—and to himself—what he means and what he does not mean by his statements. Mr. Merrington's own "constructive" chapters turn wholly on the question what is meant by the constantly recurring words "experience" and "personality," but the present reviewer is so far from knowing what Mr. Merrington means by these words that he feels incompetent to say whether Mr. Merrington's doctrine is either new or true. Thus when Mr. Merrington decides that God is a Person, I am not sure (*a*) whether what he means by this is from the point of view of Christian theology, orthodox or merely heretical, nor (*b*) whether it differs much from what Mr. Bradley, of whom Mr. Merrington has so poor an opinion, might also have said.

I think I might have been more able to answer both questions if the author had told me what exactly he means by a person and, above all, what he means by experience. I suspect what he is really concerned to maintain is something to which I should largely agree with him, but his prejudice against "concepts" and definitions makes it very hard to be sure.

As a general remark I may perhaps be allowed to say that I feel too much is made nowadays of the words Person and Personality as ascribed to God. It is, at least significant, that throughout the whole formative period of historical Christian theology it never seems to have occurred to the minds of the great theologians that the "personality of God" was a tenet of the faith. The proof of this is simple: one has only to try to render the statement "God is a person" in the Greek of the early Fathers or the Latin of the Great Western Doctors or of St. Thomas to find that there are no words to the purpose in the vocabulary of either Greek or Latin Christianity. *οὐσία, ὑπόστασις, πρόσωπον, essentia, substantia, persona*, not one of them will give the sense which appears to be intended when a modern writer speaks of a "personal God". And this seems to suggest that perhaps we ourselves do not really know exactly what we mean when we use the phrase. Until we do know, it seems rash to regard the "Personality of God" as a fundamental truth. Of course if all that is meant is that we shall be less out if we imagine God as a wise and good man than if we think of Him as a "force" like gravity, or a "stream of tendency"—whatever that may mean—most of the philosophers who come under Mr. Merrington's lash, if not all of them, would probably admit this. But if the proposition is put forward as conveying important knowledge about God "as He is in Himself," I feel inclined to respond with the familiar doctrine of the schools that *non possumus in hac vita videre Deum per essentiam*. At most the proposition must mean simply that I stand to God in relations in which I can stand only to persons. But when I ask myself what relations can I sustain only towards persons, I find myself thrown back in attempting an answer on just that juridical sense of the word "person" which Mr. Merrington regards as insignificant.

A. E. T.

The Fundamentals of Psychology. By W. B. Pillsbury. New York: The Macmillan Co., 1916. Pp. vii, 562. 8s. 6d. net.

The distinctive feature of Prof. Pillsbury's text-book is its theoretic impartiality. All notable points of view are indicated, so that the exposition represents fairly the state of the psychological mind of the present time in general. Such a book may be a welcome counterpart to any teaching that is directed mainly towards some special point of view. The text is clearly and lightly written.

The plan followed is much the same as that of the author's *Essentials of Psychology*, which contained 362 pages. The treatment of the nervous system has grown from 44 to 83 pages, that of the sensations from 44 to 118 pages. In the latter physiological matter preponderates.

A few points from this part may be noted by way of criticism. "The tritone, the fourth, and the fifth, the accepted intervals of the Greeks, have gradually given way to the thirds and sixths, and now we see seconds and sevenths admitted to music under certain circumstances" (p. 159); this probably refers to the classification of the *octave*, fifth, and fourth as consonances by the Greeks and to the later, and our, inclusion of the thirds and sixths in the same class. The statement

that "beats seem to be carried by neither of the tones themselves, but by a tone intermediate between the tones that produce the beats" seems to assert too definite and special a reference for beats. "If one will hold down a key [of the piano] and sing, the corresponding note will be distinctly heard to respond in sympathetic vibration;" any key? One would like to know exactly where Helmholtz in his completed theory suggested that "the vibration of the [basilar] fibres was dampened by the tectorial membrane, which was assumed to drop down upon them [?] when the sound ceased" (p. 165). "From this it seems that the essential organs in the appreciation of movement are the muscles and tendons with the sensory nerve ends that are embedded in them. These results have been confirmed by v. Frey" (p. 199). But, in the paper referred to by Pillsbury, v. Frey summarised his own conclusion thus: "Durch die oben beschriebenen versuche scheint mir der Beweis erbracht, dass es eine Wahrnehmung der Muskelspannungen, ganz unabhängig von irgendwelchem Bewegungserfolge, gibt und dass sie auch bei der Beurteilung von Bewegungshindernissen (gehobenen Gewichten) eine massgebende Rolle spielt, Hand in Hand mit der Wahrnehmung des Bewegungserfolges. *Es wird die Aufgabe weiterer versuche sein, zu ermitteln, auf welchem Wege die Kenntnis des letzteren gewonnen wird.*" v. Frey's theory refers, as the title of his paper says, to the Kraftsinn—the sense of weight—and not to the sense of angular movement, to which Pillsbury's paragraph refers, and still less to the sense of angular position which is there thrown into the bargain ("it is important to know where the different members of the body are at any moment"). The absence of sense-organs on the contiguous surfaces of joints and the inhibitory and distracting effects of induction currents do not imply that the senses of strain or weight and of angular position (and movement) are the same or depend on the same sensory receptors.

HENRY J. WATT.

Organic to Human: Psychological and Sociological. By HENRY MAUDSLEY, M.D. Macmillan & Co., Ltd., 1916. Pp. viii, 386.

"Disillusioned old age," says Dr. Maudsley, "albeit failing energy unfits it for prompt decision and vigorous execution, has a set-off of some value in its store of experience, in its aloofness from affairs, in a cool judgment of them unbiassed by personal interest." Dr. Maudsley need not apologise for these exercises undertaken to "occupy the time and ease the burden of the dreary decline from three to fourscore years". They are the most interesting form of auto-biography. For my part, I like to see what the warm creed of youth comes to when the habit of action makes all creeds superfluous and the illusional purpose that was the future is now an accepted cause in the past. It is pleasing to have, as we have here, a calm survey of the ideas that filled and fill a life and to have them set forth in a soft continuity of narrative that reads like a twice-told tale. Yet it is argument all the time. It is not a book to summarise or discuss; it is one to take up on occasion when one tires of academic metaphysics and wishes to see the panorama of ideas that have sustained a life spent in the practical direction of the human mind within the conditions of life as it has been lived in the last sixty years. No one man has done more than Dr. Maudsley to keep the general idea current in the infinite detail of alienism. His present volume shows us the larger relations that interest himself, now that leisured age leaves him free to think detachedly. The psychologist and sociologist will find much worth reading in this account of mental organisation, reproductive considerations,

consciousness and continuity, science and social advance, conditions of civilisation, the microbe and man, education and socialisation, etc. The point of view is indicated thus: "By adaptive working experience and its consequent physical structuralisation in the brain—the literal in-struction or in-formation, that is, of cerebral plexuses of structure and function—were the incorporation of memories and the required skill gained; without such fitly organised plexuses the mental function which they embody and discharge never was, nor is, nor probably ever shall be performed on earth" (p. 6). Consciousness is an epi-phenomenon, or dependent phenomenon, which, on the dissolution of the physical structure, "vanishes into nothingness or the void" (p. 6). "To make reason the full-blown attribute or faculty of a separate mental entity is to overlook the entire process of its gradual formation and growing function in every mental organisation" (p. 7). But these are only points of view: the essays are really a tolerant criticism and estimate of the leading social ideas and motives and movements of to-day, in a setting of informed biology, psychology and ethics.

W. L. M.

Études de Philosophie Morale. By C. Werner. Geneva and Paris, 1917. Pp. vii, 248.

Prof. Werner,—already known to some of us as the author of a brilliant work on *Aristotle and the Platonic Philosophy*,—has collected under this title a number of essays and addresses all concerned with the borderland between ethics and religion. The author's standpoint is in general that of Hegelianism,—perhaps one might say more precisely Hegelianism of the "right Centre". The views he expresses, and the fervour of his devotion to the spiritual values of life, must naturally remind an English reader of the kindred utterances of T. H. Green and the Cairds. If I may hint a criticism, I should be inclined to say that Prof. Werner's weak point is also the weak point of the thinkers I have just mentioned, —inability to appreciate the value for religion of the attachment of its concepts and emotions to a definite historical personality and a definite historical community. I doubt whether he has ever asked himself, any more than most 'liberal' theologians have, the question whether any faith that is to exercise a real and lasting control over men's actions is not bound to be an "institutional" religion with a real historical person as its centre. I think I detect in him, for instance, some traces of the tendency to disparage not this or that 'creed,' because its propositions are false, but all creeds as such, because their statements are definite. Common as this tendency is, it is surely simply foolish. That a given proposition is actually or probably false is a good reason for refusing to believe that proposition, but if it is desirable to believe anything at all in religion, it must be right that our beliefs should be definite. Mere vagueness can hardly be more of a merit in religion than mere want of outline in art, or ambiguity of formulation in science. The style and tone of Prof. Werner's essays is charming except perhaps in the last of them all, that on the value in religion of Renouvier's neo-criticism, in which there is more than a touch of acerbity.

A. E. T.

Le Qualita del Mondo Fisico. By Enzo Bonaventura. Firenze: Galletti & Cocci, 1916. Pp. 306.

This volume is an important contribution to the philosophy of nature. It sets out from the problem whether the differences observable in sensory qualities spring from qualitative differences in the external agents, or whether they represent only the way in which external agents, really homogeneous, appear to the conscious subject; and, if the latter is true, under what conditions the homogeneous agents give the different sense qualities. In pursuit of a solution, Bonaventura goes over the various physical, chemical, physiological and psychological theories, since Galileo, which have attempted to unify or explain the differences in the world of sense-perception. The work is valuable not only for its masterly summary of scientific research, but also for its remarkably clear arrangement, its methodical progression, the distinction and smoothness of its style. The general conclusion to which it tends is that the mechanical theory is bankrupt, and that some sort of spiritualistic interpretation of the physical and physiological facts is necessary, but there is no shirking of the issues, and the conclusion is built on a purely scientific analysis of the facts, and a philosophical criticism of the concepts of matter, force, energy and others.

The Introduction distinguishes "quality" as the *given* in our experience, from "quantity" as the relative, comparative, measurable aspect, and argues with regard to the general nature of the former, that it is impossible to get beyond a dualism between the percipient subject on the one hand, and the perceived qualities on the other, the acts of the former—seeing, hearing, etc.—being quite distinct both in existence and in nature, from the different qualities of colour, sound, etc. It is shown to be impossible also for science to limit itself to pure description (Duhem, etc.), without explanation or hypothesis, since all statements of connexion, dependence, etc., go beyond the data of experience, and are in fact hypothesis. Hence the appeal is necessary, first to scientific explanation, but ultimately to metaphysical interpretation.

The three main parts of the book deal with the physical, the chemical and the physiological theories respectively, the first occupying half of the whole work (pp. 27 to 168). Bonaventura shows that with the moderns there are two kinds of mechanistic theory, the one emphasising the formal or mathematical, the other the real or physical aspect. The former does not attempt to penetrate to the nature of reality, it assumes that the mechanical processes are the intelligible, but not necessarily the *only* part of the phenomena. With the latter, atomism leads up to some theory of the nature of reality, as the doctrine of the continuity of matter in Descartes, or the corpuscular hypothesis in later physics (p. 51). It is mainly with the second group that the author deals, showing by a discussion of all the principal theories of matter and movement, in their relation to perception, that none has succeeded in explaining the origin of differences of quality, that as soon as they descend from abstract principles to concrete facts, they surreptitiously introduce concepts that are in contradiction with their fundamental assumptions. In the same way in Section 3, on Force, the attempts to reduce force to movement (Lagrange, Hertz, etc.), and to eliminate action at a distance on mechanical principles, are shown to have failed. A similar conclusion is brought out in regard to the forms of energy (Section 4), establishing that heat, light, electricity and chemical affinity are irreducible one to another, that so far from all the phenomena of nature being mechanical, the contrary is true, that no natural phenomenon is a purely mechanical one. In

Section 5, the attempts to transcribe the data of perception—form, volume, weight, etc.—into terms of energy, and Ostwald's theory of energy as a sort of "thing in itself," or substance, are criticised, and it is argued that energy is a pure quantity, and belongs entirely to the domain of mathematics.

Part II., on chemical theories, follows the same historical and critical lines as Part I. for the physical theories. The four sections deal with the elements (Dalton and the law of periodicity), the compounds, states of matter—gases, fluids and solids—and dynamistic hypotheses respectively. The net result is that there is no primitive homogeneity of matter, that there are qualitative differences between molecules of organic and of inorganic compounds, and between the molecules of the various compounds within each series, and that the discoveries of radioactivity have done away with two of the fundamental concepts of the classical chemistry, those of the passivity of matter, and the irreducibility of the elements. Matter is undergoing an evolution, not only in its biological, but even in its most purely "physical" forms. The transformation of elements is possible, although it appears to be limited within certain groups (p. 230), so that the various properties of substances are the expression of chemical individuality, parallel to biological and mental individuality.

Part III., on physiological theories, deals mainly with the doctrine of specific nerve energies, in its bearing on the problem of qualities. A useful restatement of Johannes Mueller's work is given, its support by the neuron-theory, and Helmholtz's and others' extension of the specific energy doctrine to the different qualities within a given sense, as well as the different "modalities" or major differences between sight and hearing, taste and smell, etc. Section 2 deals with criticisms and restatements of the theory, and Section 3 with the radically opposed principle of *functional indifference* (Lewes, Wundt, etc.), and of the parallel evolution of the nervous system on the one side, the discrimination of sense-qualities on the other. This also is shown to be inadequate, especially in its implied derivation of all sensibility from the primitive type of touch.

In conclusion, it is argued that even when physiology shall have given a precise explanation of the way in which the senses carry out their function, it will not account for the origin of the sensory qualities. The true specific energies are the different ways in which the activity of the sentient subject expresses the differences of nature in its own gradual evolution. Sensory qualities "are not an external product of the reciprocal action of material elements, but are the representations which a conscious subject has of these actions" (p. 305). The conscious subject has its own appropriate form of activity, its conscious unity, its negation of extension; such a being is by definition spiritual, so that the study of sensation and perception alone, apart from higher activities, certifies the reality of the spiritual individual (p. 306). And the sum of the whole work is that modern science is itself leading to the hypothesis of "individualistic spiritualism" as that which is most firmly based upon our present scientific results, and at the same time that which more than any other satisfies the needs of our thought.

For the student of philosophy or psychology the work may be strongly commended as an admirable sketch of the progressive evolution of scientific theory (in which British writers have ample justice), and as a formidable criticism of the "mechanism" with which so much of that theory is imbued.

J. L. McIntyre.

Il Fondamento Morale della Politica secondo Kant. By E. P. Lamanna. Florence, 1916. Pp. 135.
L'Amoralismo Politico. By E. P. Lamanna. Florence, 1916. Pp. 39.

Two admirable essays on the impossibility of constructing a theory of politics on any but an ethical basis. The longer and first-mentioned is a very careful and candid exposition and criticism of the political theory of Kant, a department of the critical philosophy which has hardly received adequate attention in this country. The writer's exposition of the subject should serve as a final confutation of the absurd allegation, put forward by the Rev. Bernard Vaughan and some others, whose zeal is not according to knowledge, that Kant is somehow responsible for the offences of his countrymen against humanity and international law in the present war. At the same time, Mr. Lamanna shows admirably how the fundamental dualism of Kant's moral theory, which leads him on the one hand to find the seat of all moral obligation in the "noumenal self," and on the other to regard every "empirical man" as little better than a potential criminal, has its counterpart in the reasons which lead him as a political theorist to deduce from the premisses of the *Declaration of the Rights of Man* a doctrine of non-resistance which might have satisfied Hobbes. In view of the tendency of many of our own disciples of Kant and Hegel to deny the very possibility of a right against the State, I should like to quote the weighty words of the author on page 122. 'The individual cannot grant to the State, any more than to other individuals, the power to violate his own essential prerogatives as a person, for he has not himself this power. As Rosmini says, law (*il diritto*) is the child of duty, and the power to fall short of his own duty can be conceded to no one.'

The second essay, a reprint of an article from *La Cultura Filosofica*, deals faithfully with the so-called Machiavellian doctrine that moral judgments are not applicable to acts of State, showing incidentally how completely the doctrine misrepresents the meaning of Machiavelli himself.

A. E. T.

L'Internazionale dei Lavoratori e la Alleanza. By Prof. G. Taizzi. Ostiglie [undated]. Pp. 64.

A thoughtful, if not very lightly written pamphlet in the form of an open letter to a socialist friend on the impossibility of really separating "class" from "national" aspirations and the practical difficulties which the international socialists are in danger of erecting for the realisation of their own ideal by cultivating an attitude of indifference to the national ideals of their fellow-citizens.

A. E. T.

Received also :—

Bernard Bosanquet, *Social and International Ideals*, London, Macmillan & Co., 1917, pp. ix, 325.
F. C. Constable, *Personality and Telepathy*, London, Kegan Paul, Trench Trubner & Co., 1911, pp. xv, 330.
A. N. Whitehead, *The Organisation of Thought*, London, Williams & Norgate, 1917, pp. vii, 228.

Walter T. Marvin, *The History of European Philosophy*, New York, The Macmillan Co., 1917, pp. xiii, 439.

William Smart, *Economic Annals of the Nineteenth Century*, 1821-1830, London, Macmillan & Co., pp. xxii, 584.

Carl C. Brigham, *Two Studies in Mental Tests*, Psychological Monographs, Princeton and Lancaster Psychological Review Co., 1917, pp. 254.

T. Pellatt, *Public School Education and the War*, London, 1917, pp. viii, 123.

May Sinclair, *A Defence of Idealism*, Macmillan & Co., London, 1917, pp. xxi, 396.

Studies in Psychology, Contributed by Colleagues and Former Students of E. B. Titchener, Worcester, Mass., Louis N. Wilson, 1917, pp. 337.

E. B. Titchener, *A Beginner's Psychology*, New York, The Macmillan Co., 1916, pp. xvi, 362.

P. Coffey, *Epistemology or The Theory of Knowledge*, London, Longmans, Green & Co., 1917, pp. xiv, 374; viii, 376, 2 vols.

Prof. G. M. Stratton, *Theophrastus and the Greek Physiological Psychology Before Aristotle*, London, Allen & Unwin, 1917, pp. 227.

N. J. Melville, *Testing Juvenile Mentality*, Philadelphia and London, J. B. Leppincott Co., 1917, pp. vii, 140.

Rev. W. Blissard, *The Economic Anti-Christ*, London, G. Allen & Unwin, 1917, pp. 258.

VIII.—PHILOSOPHICAL PERIODICALS.

Philosophical Review. Vol. xxvi., No. 3. **B. Bosanquet.** 'The Relation of Coherence to Immediacy and Specific Purpose.' [Reply to Sabine. The primacy of coherence rests on the principle of implication, which is the core of inference. What is given is the whole varying world of experience; and the comprehensive and coherent real becomes, within such a world, a standard by which itself and the imaginary can be tested. In the motive of scientific curiosity, the impulse of the mind to know, all private motives and unique tensions are superseded.] **W. M. Urban.** 'The Knowledge of Other Minds and the Problem of Meaning and Value.' [There is an immediately intuitive knowledge of other minds, which carries with it evidence no poorer than that for physical objects. What is here known is 'inner' meaning or personality; and inwardness may have a common character simply because external and internal are not mutually exclusive in the world of values, as they are in the world of existents.] **R. F. A. Hoernlé.** 'The Mental and the Physical as a Problem for Philosophy.' [Physics and Psychology have a right to their own abstractions, but that is not to say that the spheres of the physical and the mental, scientifically defined, exhaust the universe for philosophy. Philosophically, mind is a distinctive form of activity exhibited by bodies of a certain structure; the Cartesian exclusiveness has long ago been cast out.] Discussion. 'Progress in Philosophical Inquiry and Mr. Lovejoy's Presidential Address.' (1) **E. Albee.** [Emphasises the technical uniqueness and relatively individual nature of philosophy.] (2) **C. M. Bakewell.** [Philosophy is an individual adventure with a certain cosmic sweep.] (3) **T. de Laguna.** [Philosophy has had very practical consequences. Philosophical problems are relatively fundamental, and disagreement is to be expected if philosophers are active.] (4) **W. E. Hocking.** [Co-operation is good; but philosophy has no fixed term, and history shows that only the greatest system-makers survive.] (5) **E. H. Hollands.** [Philosophy is personal in so far as it must take account of values and employs a constructive procedure. It has not to solve particular problems, but to think their results and all the real together.] Notices of New Books. Summaries of Articles. Notes.

Psychological Review. Vol. xxiv., No. 1. **J. W. Bridges** and **L. E. Coler.** 'The Relation of Intelligence to Social Status.' [Tests by the Yerkes-Bridges point scale. Intelligence correlates highly (probably more highly for boys than for girls) with social status; if mental age were determining, the children of the professional group would enter school two years earlier than those of the unskilled-labour group.] **S. D. Porteus.** 'Mental Tests with Delinquents and Australian Aboriginal Children.' [Maze-tests give, for two groups of delinquent children, an average deficiency of 2 years 4 months, and 5 years 8 months; for aboriginal children (few of them full-blooded), 5 months only; for normal deaf-and-dumb children, 2 years, and for feeble-minded deaf-

and-dumb boys, 5 years 2 months.] **E. B. Titchener.** 'The Psychological Concept of Clearness.' [Traces the history of the concept in Wundt's system; replies to Britz' critique.] **S. B. Russell.** 'Compound Substitution in Behaviour.' [Selective reaction, simple substitution, the memorised series, and delayed reaction are all characterised by association; the association nerve-fibres register the frequency and recency of impulses, and in turn regulate the passage of impulses that provoke movement. A case of compound substitution (mental arithmetic) is a memorised series modified by suppression of movements, so that all stimuli concerned co-operate for the resultant response; delayed reaction is, of course, involved.] **W. S. Hunter.** 'The Delayed Reaction in a Child.' [Three-box tests of a girl (13 to 16 months), possessed neither of vocal nor (probably) of gesture language, confirm the importance of maintenance of orientation and of an intraorganic factor (probably kinæsthetic sensory ideas).]—Vol. xxiv., No. 2. **R. Dodge.** 'The Laws of Relative Fatigue.' [Mental fatigue cannot be defined in terms of work-decrement, for that may be due to intercurrent rhythms, residual excitation and rivalry, specific and trophic inhibition. True mental fatigue is always relative, owing (1) to the inconstancy of the stimuli (especially the inner stimuli) in mental work, and (2) to the interaction of competing paths. We may formulate two laws of relative fatigue: (1) within physiological limits, all fatigue-decrement in the results of work is relative to the intensity of the stimulus, and (2) in any complex of competing tendencies the relatively greater fatigue of one tendency will tend to eliminate it from the competition in favour of the less fatigued tendencies.] **E. C. Tolman.** 'More Concerning the Temporal Relations of Meaning and Imagery.' [Repetition of Moore's work with relatively untrained observers. Neither of the extreme positions can be maintained.] **A. I. Gates.** 'Experiments on the Relative Efficiency of Men and Women in Memory and Reasoning.' [Women are noticeably better in memory (immediate or delayed), men slightly better in reasoning. Both sexes prefer memory-work, but relatively more men are willing to exchange it for reasoning.'] **E. L. Thorndike.** 'Individual Differences in Judgments of the Beauty of Simple Forms.' [The diversity of judgments whose average favours, *e.g.*, the golden section, is really very great.] **A. P. Weiss.** 'Preliminary Report on the Relative Intensity of Successive, Simultaneous, Ascending and Descending Tones.' Discussion. **C. E. Ferree** and **G. Rand.** 'A New Method of Heterochromatic Photometry: A Reply to Dr. Johnson.' **S. C. Kohs.** 'The Stanford (1915) and the Vineland (1911) Revisions of the Binet Scale.'—Vol. xxiv., No. 3. **H. Carr.** 'The Nature of Mental Process.' [Urges that mental functions are psychophysical (at times neural) activities, and that psychology should study them in their entirety.] **W. S. Hunter.** 'A Reformulation of the Law of Association.' [The second member of an association may be and often, if not usually, is a sensory and not an imaginal process. Man's language sequences, in particular, are but the development of the animal form of sensory associations.] **S. I. Franz.** 'The Scientific Productivity of American Professional Psychologists.' [Statistics of the output of eighty-four persons representing forty-eight institutions during the decade 1906-1915.] **E. L. Thorndike.** 'The Psychology of Thinking in the Case of Reading.' [Under-potency and over-potency of elements, dislocation or disrelation of elements, and wrongness or inadequacy of connexions account for errors in thinking; the converse of these three mechanisms, for correct thinking. Hence there is no fundamental physiological contrast between fixed habits and reasoning.] **D. Starch.** 'The Similarity of Brothers and Sisters in Mental Traits.' [The resemblance is approximately as great in mental

as in physical traits; it seems to be greater in some traits than in others (further work is needed); it is no greater in the mental traits which are environmentally affected. Heredity is thus stronger than environment.] **E. K. Strong, Jun.**, and **E. P. Gilchrist.** 'A Method of Recording Errors in Form Board Tests.' Discussion. **L. J. Martin.** 'Introspection *versus* the Subconscious.' [Introspective data brought out only by the express instruction to introspect raise the question of the relation of consciousness to subconsciousness.] **G. M. Stratton.** 'The Mnemonic Feat of the "Shass Pollak".' [The 'Talmud Pole' is a memory expert who has a visual-topographical memory of the entire Talmud.]

British Journal of Psychology. Vol. vii., Part 4. **W. Lankes.** 'Perseveration' (with an introduction by C. Spearman). [A series of experiments of widely differing types, suggest the existence of a general factor other than general ability; probably the factor is Perseveration. But this Perseveration does not correlate with Perseverance, the quality of character: and this because the self can modify its innate tendency to Perseveration.] **George H. Miles.** 'The Formation of Projected Visual Images by Intermittent Retinal Stimulation.' [Intermittent excitation causes succession of changes in the projected image, and may result in a fusion of the most effective phases with the result that the projected image produced by intermittent stimulation shows a marked gain in intensity. Explanations of this and other phenomena are discussed.] **A. Wohlgemuth.** 'Simultaneous and Successive Associations.' [Experiments done with pairs consisting of a colour and a figure. Conclusions: simultaneous presentation was more favourable than successive. The more the members of a group were apperceived as a whole the stronger was their association with one another. In psychological memory proper (*i.e.*, not motor associations) all associations are due to simultaneity, either simultaneity of the experiences, or simultaneity of the succeeding experience with the subconscious phase of the preceding experience.] **N. Carey.** 'Factors in the Mental Processes of School Children—I., Visual and Auditory Imagery.' [High correlation between Imagery of different types. No tendency for memory of visually presented material to correlate highly with power of visual imagery: similarly with auditory imagery and words heard. No correlation between imagery and higher mental processes or with proficiency in ordinary school subjects—even very low correlation between painting and visual imagery.]—Vol. viii., Part 1. **Carveth Read.** 'The Psychology of Animism' [Distinguishes Hyperphysical Animism and Psychological Animism, and discusses at length the Ghost-theory of the origin of animism, concluding with the evolution and dissolution of animism.] **Ernest Jones.** 'The Theory of Repression in its Relation to Memory.' [Maintains that the usual explanation of forgetting, *e.g.*, lack of interest, is inadequate and that all forgetting is due in part at least to repression, this being not only a tendency voluntarily to expel certain thoughts out of consciousness but also a tendency to prevent them from entering consciousness.] **Godfrey H. Thomson** and **Frank W. Smith.** 'The Recognition Vocabulary of Children.' [Estimate of the size of vocabularies of elementary school children by the dictionary test, show boys to be somewhat superior to girls in this respect between the ages of 12 and 15.] **Godfrey Thomson** and **J. Ridley Thompson.** 'Outlines of a Method for the Quantative Analysis of Writing Vocabularies.' [Shows the plotting of an asymptotic curve indicating a decreasing number of new words as one takes new paragraphs of a given writer. Dickens' *Copperfield* is reread as an example.] **N. Carey.** 'Factors in the Mental Processes

of School Children—II., On the Nature of Specific Mental Factors.' [Various sensory-discrimination tests indicate no common factor of the nature of a general act of discrimination. There is a very small general memory-act factor; but in the memory of verbal material a change of content reduces the correlation more than does a change in the mode of presentation (*e.g.*, from visual to auditory). The quality described as "painstaking" is much more limited in its influence than is generally supposed.] **George H. Miles.** 'The Formation of Projected Visual Images by Intermittent Retinal Stimulation—II., Apparatus, Procedure and Results.' [Gives detailed account of conditions which apparently determine the development of projected images, including the influence of volition, movement of the eyes, etc. The relationship is discussed between the factors involved in the formation of the projected image and immediate visual memory.]

JOURNAL OF PHILOSOPHY, PSYCHOLOGY, AND SCIENTIFIC METHODS. xiv., 3. **H. C. Brown.** 'Matter and Energy.' [Discusses whether atoms and electrons 'really exist' and answers, pragmatically, that they do in so far as they fulfil their scientific function. But like all scientific concepts they are results of a human reaction on nature, and the analysis which produced them need not be ultimate. For "resting points in analysis are determined by the needs of human action". At present "the atom is an entity in about the same sense as Congress"; and as any 'element' showing complexity in behaviour can probably be analysed further "it is highly doubtful whether our electron is as simple as now appears".] **J. F. Dashiell.** 'Spirit and Matter: A Philosophical Tradition.' [The traditional problem of spirit *versus* matter may be given vitality "by taking it as the antithesis between 'the interest in *ideals* (or the standards and guides to our endeavours) and the interest in *data*' (the starting-points and raw materials of our efforts)".] Report by **A. T. Poffenberger** on the N.Y. Branch of the American Psychological Association. xiv., 4 [not received]. **J. B. Watson.** 'Does Holt follow Freud?' **T. L. Davies.** 'The Contrast between Scientific Theory and the Demands of the Pragmatic Prescription.' **M. Eastman.** 'The Will to Live.' xiv., 5. **A. A. Goldenweiser.** 'Religion and Society' a Critique of Emile Durkheim's Theory of the Origin and Nature of Religion.' [Detailed and concrete criticism; it is argued *e.g.* that *mana* must be prior to totemism.] **J. M. Mecklin.** 'The Revival of the Ontological Argument' [by Galloway, Wobbermin, and especially Hocking. Hocking's argument is shown to resolve itself into the question of the cognitive-value of the mystical experience. It is objected that this experience adds nothing to the content of knowledge and that the world is "strewn with dead gods" as the re-evaluation of experience proceeds.] xiv., 6. **H. W. Schneider.** 'The Theory of Values.' ["The value situation consists of (1) a valuable object, (2) an organism or activity to which it is valuable (or by which it is valued), (3) an end or purpose for which it is valuable." One of these factors has always been ignored. The value psychologists studied valuation *per se* and omitted the object valued and the specific end for which it was valued, and were at once charged with subjectivism by realists and absolutists, whose 'eternal' values were irrelevant to human purposes. "Of course, human values are relative to human activity and desire, but that is no ground for despising them as *merely* subjective. Of course, values are objective, both in that they are of objects and in that they are controlling and guiding factors of human experience; but why should value, therefore, be an eternal quality of objects independently of the relations of these objects to practical situations?" Experimental psychologists

similarly have failed to include the whole situation. They have tried to determine value in general, without asking 'value *for what?*' and so their results are not answers to genuine questions. "Value appears essentially as that quality of an object by virtue of which it becomes a means to an end. Moreover, means and ends are relative terms. The end, however, is not strictly a value—it is invaluable; and values, like facts, are neither true nor false, they simply *are*; it is valuation which is true or false." So too "that values control our conduct is not a moral ideal, but an empirical fact". But as they are chance social products, the need for changing them should not be forgotten.] **R. M. Yerkes.** 'Behaviorism and Genetic Psychology.' [An appreciative review of Hobhouse's *Mind in Evolution*, ed. 2.] **J. Dewey.** 'The Concept of the Neutral in Recent Epistemology.' [Distinguishes between (1) the neutral in a specified reference, and (2) the neutral as a constitutionally indifferent stuff. (1) is a logical sense which means that a certain distinction is simply inapplicable, and that certain terms may be used 'without prejudice'; (2) asserts an ontological doctrine. It is shown that the two senses have been confused, *e.g.*, by James.] xiv., 7. **R. B. Perry.** 'Dewey and Urban on Value-Judgments. [*Cf.* xii., 19, 20, xiii., 17, 25: thinks that Dewey's 'paradox' that a practical judgment has for its object something of the reality of which it is a condition may be avoided by distinguishing between the possibility and the fulfilment, and criticises Urban's proofs that the value-judgment is different from all judgments of fact.] **N. H. Adlerblum.** 'A Reinterpretation of Jewish Philosophy.' [Finds in Jehuda Halevi and Ahad Ha'am Jewish forerunners of pragmatism.] **M. R. Cohen.** 'The Interests served by Law and the Methods of their Evaluation.' ["The great problem of the law is to determine the line between temporary and permanent interests, and to devise ways in which the former may be served without detriment to the latter."]

Revue de Métaphysique et de Morale. Jan., 1916. **G. Lanson.** 'Le déterminisme historique et l'idéalisme social dans l'*Esprit des Lois*.' [Montesquieu often asserts that social phenomena are almost independent of the voluntary acts of individuals and yet constantly gives directions for social reforms. He only meant that an individual can do little by isolated acts, and nothing even by laws unless he makes them fit into the customs and genius of the people.] **É. Meyerson.** 'La science et les systèmes philosophiques.' [Positivism is in theory the ruling philosophic doctrine of scientists; but in practice it should lead to a purely phenomenalistic formulation of science, which certainly does not and probably cannot exist. Scientists think they do without metaphysics because (*a*) they rapidly and unconsciously pass from one view to another; and (*b*) the instinctive metaphysical view of all is similar.] **É. Gilson.** 'Art et Métaphysique.' **M. Winter.** 'Le Temps et la Mécanique héréditaire?' [A sketch of Volterra's method of treating physical problems by integro-differential equations, thus avoiding the assumption that the state of a system at any moment is completely determined by its state at a *finite* number of other moments. Important.] **D. Parodi.** 'La Force et le Droit.' [Criticism of Ruyssen.]—Sept., 1916. **Ch. Andler.** 'Les origines philosophiques du pangermanisme.' [Traces the Protestant side of pan-Germanism through Schiller, Herder, Fichte, and Hegel; the Catholic through Schlegel on the one hand and Gœrres on the other. Hegel and Fichte make everything lead up to Luther and Frederic (the Protestant hero); Schlegel and Gœrres have to explain them away as unimportant aberrations. But in the end all arrive at the notion of the Germans as a chosen people.] **L. Robin.** 'Sur la concep-

tion épicurienne du progrès.' [The golden age was in the beginning ; both nature and man are degenerating. Invention is valuable so far as it enables man to wring necessities out of an ever more reluctant nature. But (*a*) it will be useless in the long run, and (*b*) in the meanwhile it produces desires for the needless and useless.] **B. Varisco.** 'Sur l'application des mathématiques à la physique.' [Mathematical formulæ express directly only the relations between the values of variables ; they omit the qualitative differences of the latter, and, in particular, the peculiarity of time.] **A. Reymond.** 'L'infini géometrique et l'intuition.' [The object of the article is to explain how points, lines, and surfaces at infinity can be treated as having definite numerical relations. It is admitted that the ordinary logical solution is *logically* satisfactory, but geometry cannot be wholly reduced to analysis. Geometrical intuition is distinct from sense-perception and in certain cases from imaginative representation, but it remains an essential factor. The entire similarity of all points necessitate that an indefinite straight line must be a closed curve in a space of at least two dimensions ; similar remarks apply to planes and volumes. To each point in a straight line will correspond one other symmetrical with it, and this is the point at infinity. The distance between the two cannot be measured by any unit that will measure distances in the neighbourhood of either.] **G. De Ruggiero.** 'La pensée italienne et la guerre.' [Effect of the war on the historic Italian parties. Contains an interesting criticism of German culture. When the Germans had something that other nations needed the other nations absorbed it readily ; when Germany has to force it on them we may be sure that they have outgrown the need for it. Culture is an acquaintance with results rather than a spirit of original thought. Italy does not despise what it owes to the Central Powers, but it will now make this factor its own and no longer tolerate it as a foreign body.] —Numero consacré à Malebranche. Jan., 1916. **M. Blondel.** 'L'anti-Cartesianisme de Malebranche.' [Shows by numerous examples that Malebranche's philosophic tendencies and interests were radically opposed in most respects to those of Descartes.] **E. Boutroux.** 'L'intellectualisme de Malebranche.' [M. was a convinced rationalist, but he held that reason could deal with religious and moral problems as well as mathematical and physical ones, and that the former were its highest exercises.] **P. Duhem.** 'L'optique de Malebranche.' [A most learned and interesting article in which the author shows from an elaborate study of the history of Optics that Malebranche was the first to give the modern theory of the connexion between colours and light-waves.] **R. Thamin.** 'Le Traité de Morale de Malebranche.' [There is an order of perfection which can be perceived by reason as well as the order of magnitudes. Faith is only reason made manifest to imperfect beings ; it will 'vanish into sight,' and, even in this life, we should substitute clear thinking for it so far as we can.] **Van Biéma.** 'Comment Malebranche conçoit la Psychologié.' [Malebranche denied the Cartesian view that we have fuller knowledge of the soul than of the body. He doubted whether we have rational deductive knowledge of ourselves at all. Hence he would naturally be disposed to make psychology a science of observation. In the main he did not do this, in spite of his own fondness for observation and his acquaintance with the theories of others He preferred to deduce his psychology from his knowledge of the perfection of God] **V. Delbos.** 'Malebranche et Maine de Biran.' [Malebranche rejected the feeling of activity as an illusion. Maine de Biran accepted it as a genuine revelation, and tried to refute the special argument used by Malebranche to discredit it.] **De Roustan.** 'Pour une Édition de Malebranche.' [No complete edition exists. The best is that of Geronde and Lourdoneix,

but it is out of print, incomplete, and badly edited. There are still many problems of authorship in connexion with Malebranche; in particular the authorship of the *Traité de l'infini créé* is doubtful. M. Roustan tries to prove that it is not by Malebranche. The very existence of the *Éclaircissement sur quatre questions importantes . . .* (in reply to Arnauld), and often attributed to Malebranche, is doubtful. M. Roustan will be glad to receive any communication relating to the bibliography of Malebranche at 73, rue Cardinal Lemoine, Paris.]—Nov., 1916. **Charles Renouirer.** 'Pensées.' [Written in the last year of his life. Interesting estimate of Sainte-Beuve; severe criticism of Vauvenargues. Also political and historical reflexions.] **L. Rougier.** 'La démonstration géométrique et le raisonnement déductif.' [Opens with a synopsis of modern symbolic logic, and argues, against M. Goblot, that the fruitfulness of mathematical deduction does not depend on any appeal to intuition, but on the possibility of repeatedly defining new entities in terms of old ones, and of relations whose logical properties are given, and then of deducing all possible relations between these entities, their elements, and other entities that have previously been defined and treated in the system. The treatment of geometry is excellent.] **R. Lenoir.** 'L'Idéalisme de Taine.' **L. Couturat.** 'De l'abus de l'intuition dans l'enseignement mathématique.' [The best plan is to use axioms which can be illustrated intuitively, but then to insist on rigorous deduction.] **G. Belot.** 'La force du droit. [Force, in political affairs, contrary to common opinion, is just as difficult to estimate as right. The *justice* of keeping faith over Belgium was a more certain fact than the *power* of Germany to crush Belgium. The essence of justice is ability to see the probable results of actions in society. In dealing with dead matter and with men of low intelligence foresight is possible by causal laws which take no account of reflective desire; in dealing with civilised men it is not.]

'Scientia' (Rivista di Scienza). Series ii. Vol. xjx. April, 1916. **A. Mieli.** 'Il periodo pneumatico della chimica.' **E. Bouty.** 'La théorie cinétique des gaz. IIème Partie: Ses progrès et ses difficultés.' **E. Rabaud.** 'Les phénomènes embryonnaires et la phylogénèse.' **J. H. Rose.** 'The Future of Europe.' **C. A. Reuterskiöld.** 'Les lignes directrices du droit des gens après la guerre.' Book Reviews. 'Revue générale d'Indologie.' **A. M. Pizzagalli.** 'Les problèmes de la fable.' Review of Reviews. Chronicle. French translations of articles in Italian and English. Series ii. Vol. xix. May, 1916. **G. Colombo.** 'Le scienze fisichel le loro applicazioni nel cinquantennio 1865-1915.' **G. Milhaud.** 'Le double aspect de l'oeuvre scientifique de Descartes.' [One would believe, at least at the first glance, that Descartes realised his programme by reconstructing, on the ruins of all that had been done before him, a wholly new science. But when we compare this kind of spontaneous generation with the great current that flows from the Greeks to Descartes, we see that, at bottom, Descartes was by no means a revolutionary. A very good article.] **A. Willey.** 'Pure Lines in Organic Evolution.' **A. H. Sayce.** 'The Assyrian Empire: a Lesson in History.' **R. Michels.** 'Il naufragio dell' "Internationale operaia" e l'avvenire.' Book Reviews. Review of Reviews. Chronicle. French translations of articles in Italian and English. Series ii. Vol. xx. Part 1. July, 1916. **A. Favaro.** 'La condanna di Galileo e le sue conseguenze per il progresso degli studi.' [The thesis of the Jesuit Adolf Müller in his book *Der Galilei-Prozesz* (1632-1633) *nach Ursprung, Verlauf und Folgen* (Freiburg in Breisgau, 1900) that the Church, by the decree of 1616 and the condemnation of Galileo in 1633, did not give any blow to astronomical research, but helped science by calling attention to the

Copernican system, is shown in detail, especially by the conduct of Descartes, to be false.] **L. Houllevigue.** 'Projections cathodiques et colloïdes.' [An interesting notice on the author's discovery of unexpected relations between two apparently independent classes of phenomena.] **A. Lalande.** 'Les rapports de la logique et de la psychologie.' [Logic is the normative science of the true and the false. That part of psychology called 'critical psychology' and of which the aim is to discover by analysis the 'laws of reason' in the Kantian sense, is, in so far as it is possible at all, relevant to logic. 'What is the notion of necessary implication of b by a if it is not the obligation for a thinking being not to deny b after having affirmed a? . . . All that the adversaries of psychologism say is valid in so far as the question is to show: (1) that logic is not a branch of psychology, an applied psychology; (2) that it tends towards an ideal radically opposed to physical or psychological experience. It is insufficient if the question is to show that logic can be shut up in itself and neglect the knowledge of the functions of the reason such as are exercised in reality. The thesis would be true of "pure logic," if pure logic were a realised or least realisable science; but we have seen that it is not.'] **W. R. Scott.** 'On Repairing the Waste of War.' ['In the intense national preoccupation upon national existence (as each nation conceives it) and in the grief of so many families for the fallen, the burden (of spending without producing) is not fully realised. Consciousness of it will come when, after the peace, life endeavours to return again to its former courses. Then the burden of present unproductive consumption in war will be felt, and in preparation for that time it is the duty of governments to endeavour in advance to adjust that burden to the capacity of those who have to bear it. Equitable adjustment of taxation and improved organisation of commerce and industry will do much to make people more capable of sustaining the load they will have to carry. In particular should we not learn something from what may be described as one of the paradoxes of the war, namely, that while there never has been a war in which material advantages have been so important, at the same time it is no less true that, conversely, there never was one in which immaterial wealth and even moral ideals were so supreme?'] **F. Virgilii.** 'I principali effetti economici mondiali dell' interruzione degli scambi internazionali.' [Somewhat detailed figures. A good article.] Book Reviews. General Reviews. **S. Jankelevitch.** 'La crise de la science et les doléances des savants en Angleterre.' [On the need of scientific organisation as shown in recent correspondence and articles in *Nature* and *Science Progress*.] Review of Reviews. French translations of articles in Italian and English.

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